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ORIGINAL CONTRIBUTIONS

SEPTIC BONE INFECTIONS WITH SPECIAL ATTENTION TO OSTEOGENESIS IN SEPSIS*

EDWARD A. RICH, M. D.
TACOMA, WASH.

There are few subjects in surgery so unmathematical as the matters pertaining to osteomyelitis.

This is not true of the easy case, where the radiograph shows the sequestrum or shows the circumscribed pus pocket, but the statement does pertain to a still larger class where the diligent x-ray search for probable lesions lends but little guidance to the trouble. In the case of children the radiograph may or may not be of assistance in a preoperative diagnosis. For instance, I well remember a case of subacute osteomyelitis in a five-year old child, in which all the findings were obscure and atypical. There was little even of an objective nature except a low grade fever and inability to use the leg to indicate trouble in the limb. The x-ray was normal enough to deceive several of us. But upon exploration, the entire shaft of the tibia from one epipheseal line to the other almost fell from the wound. Again, in the subperiosteal resections no one has been at all certain of the extent or rapidity of osteal repair that ought to follow. As will be shown later, that layer of osteogenetic cells that is stripped off with the periosteum is as variable as can be; and from that layer may develop a complete and useful shaft, or development may abort entirely or result in spike formations. Unquestionably it is true that a certain percentage of those prone to osteomyelitic infections cannot be expected to fulfil a usual or reasonable prognosis. The purpose of this paper is to record and correlate our developing conclusions.

PHYSIOLOGIC AND PATHOLOGIC ASPECTS.

I think I voice the opinions of the best experimenters, including men like Macewen, Lister, Gallie and Robertson, when I epitomize the physiology of bone in the most recent light in some such way as this:

Bone presents itself both as hard and cancellous tissue with the known system of bone cells in the lacunae and Haversian canals. Bone tissue is entirely dependent upon the periosteum and the nutrient vessels of the marrow for all its blood supply. The periosteum is a protective fibrous sheath, abounding in large and small blood vessels which in turn give up blood to the superficial bony layers; naturally those layers are the most active osteogenetically. *The periosteum, however, has no power of bone formation.* While this current of blood is making its way toward the medullary cavity, another circulation is wending in the opposite direction. The vessels of the bone marrow ramify in great profusion thru the endosteal layers and the spongy bone, finally influencing the osteoblasts in the compact bone. Naturally these bone cells in the endosteum which are so vascular are active producers of new bone.

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*Read before King County Medical Society, Seattle, Wash., Oct. 20, 1919.

We know that this compact bone *is slow* and *difficult* in osteogenesis, except in the layers adjacent to the vascular structures, and even those layers are only bone-producing where the periosteum, and to a greater degree the endosteum, is normally in place; stripping of the periosteum always reduces these layers to functions, the same as hard bone proper. Spongy, cancellous bone and endosteum are rich in osteogenetic properties and produce bone readily.

All repair in bone is the result of osteoblastic action and this in turn is always dependent upon the wealth of the blood supply. The trauma that interests the surgeon is not so much the snapping of the bone as it is the laceration of the periosteum and the destruction of nutrient arteries. Length of repair in fractures is always dependent on those factors. This accounts, of course, for the delayed unions, just as it accounts for non-union in the two common seats of non-union. Whatever is true of fractures is just as important in bone sepsis.

Gallie, of Toronto, recently pointed out that, while "we have been wont to belittle the influence of torn periosteum upon healing in septic bone wounds and fractures, we now must bear witness to our error by the facts that the rapidity of union is frequently inversely proportional to the severity of the traumatic bone condition. He believes that union following operations on fractures, in which the periosteum at the end of the fragments has been extensively reflected, and plates and wire inserted, is often greatly delayed."

He, in collaboration with Robertson, has observed that, following the stripping of the periosteum over even small areas of the shafts of the bones of animals, coagulation of the blood occurs in the Haversian canals to a considerable depth, and the lacunar cells that derive their nutrition from these blood vessels become necrotic and slowly disappear. This superficial necrosis is by no means extensive and usually gives rise to few clinical symptoms, as the circulation rapidly becomes reestablished and the necrotic bone is quickly absorbed and replaced by new bone.

Very different, however, is the fate of similar necrotic areas of bone in the presence of common osteomyelitic sepsis. "In this condition no reestablishment of the circulation takes place and no invasion by osteoblasts from the neighboring living bone. If the drainage of pus is sufficiently free to allow the acute inflammation to subside (and so terminate the spread of the destruction of the circulation), the residual sepsis along the edges of the necrotic bone stimulates the osteoblasts in the surrounding living bone to greatly increased activity, with the result that the absorption of the living bone takes place until a zone is produced about the dead bone which is occupied only by granulation tissue. This by a process of ulceration on the surface next the sequestrum, undergoes liquefaction and so allows the latter to go free. Here it remains for months or years, unless expelled by muscular action or removed by operation. By keeping up a constant irritation and harboring a mild infection it usually prevents the healing of the sinus, or, if healing does occur, causes recurring attacks of more acute inflammation.

FALLACY OF PERIOSTEAL REGENERATION.

It is well to review in this connection Macewen's recent contribution regarding the fallacy of periosteal osteogenesis. For a generation the profession has been looking upon the periosteum as an osteogenetic structure. A time after trauma or sepsis the appearance of a new layer of bone attached to the periosteum has been one of the strongest arguments in favor of the theory that the periosteum was bone-forming. Anatomically it was once taught that bone cells constituted a part of the periosteum, and empirically the teaching claimed that trauma or irritation would often stimulate the periosteum to the function of bone hyperplasia. Macewen has been contending rightly that on the surface of bone, particularly in the young, there are many osteoblasts, adjacent to but not part of the periosteum. In the traumatic processes that strip and denude the bone of its periosteum many of these osteoblasts adhere to the periosteum. These cells seem to be stimulated under such conditions to immediate activity and produce a layer of bone. This accounts, for instance, for the periosteal shelving across mal-unions. The osteogenetic layer of cells torn away from the shaft with the periosteum seems to maintain life readily, if the vascularity of the periosteum is unharmed and if infection of severe degree be not present.

In septic necrosis of a severe type bony growth fails to materialize because of osteoblastic death on the periosteum. This accounts for the osteomyelitic cases in children, where there is sometimes complete failure to regenerate after entire shafts have separated or been removed. Fortunately, however, these severe septic cases are the exception rather than the rule. When the common infections are present there are enough periosteal osteoblasts surviving to ultimately produce an involucrum. This is accomplished by a process of first laying out a network of spongy bone which later becomes compact and never entirely attaches itself to the sequestrum or original shaft because of the interposed zone of ulceration mentioned above.

OSTEOGENESIS IN SEPSIS.

Not only is bone formation possible in the presence of infection but it is an established fact that mild infection is the greatest stimulant to bone repair. This is true, however, only where the septic products have not accumulated sufficiently to produce extreme pressure. We are all familiar with the large masses of callus that form about compound fractures and many have seen recently the curious spurs that are outgrowths of septic stumps.

So sure have some bold observers become of the stimulating effect of mild sepsis that they have actually injected irritants and staphlococci cultures into epipheseal regions in the femurs of lower limbs that were shortened by previous diseases. Some have so injected non-unions, where callus formation was lacking. I am ready to report two cases where I have secured anchylosis in chronic painful tuberculous joints by innoculating the opened joint with staphylococci.

Further, orthopedic surgeons are familiar with a common pathologic entity, the lengthened limb with its startling overgrowth resulting from septic infection of a growing child's epiphesis. I recall one case in Portland, where the epipheseal growth stimulated by sepsis lengthened a femur five inches and necesssitated excision of sections of the shaft twice in two years, so marked was the diversity in length of the two legs.

As far back as in 1910 Meisenbach opened up a most interesting field in his report on attempts to influence epipheseal bone growths by bacterial and mechanical means. His work was all done on rabbits. He injected alcohol, iodine, formalin, formaldehyde, carbolic acid, graphite pegs and bacterial vaccines. He got little stimulation to growth except with 2 per cent formalin and with the vaccines. He concluded that the action was purely local, causing the formation of osteogenetic tissue by influencing the zones of provisional calcification of youth.

It is not the purpose of this paper to discuss the longitudinal repair of bone. The work, begun in 1872 by Bidder, followed by many observers, noticeably Vogt, Zoppi and Nakahara and more recently by Haas, of San Francisco, have crystalized the opinion that in the epipheses of growing bone suffering severe injury there is resultant retardation of growth. It seems that, if only the outer plate of the epipheseal cartilage is destroyed, the outer or joint portion of the bone is shortened, (which usually is an unimportant matter), but, if only the inner side of the epipheseal plate is destroyed, then the central shaft of the bone fails to grow further, which is always a matter of concern.

And, again, there is a general agreement regarding septic and mechanical stimuli to *excessive epipheseal growth*, that such stimuli do nothing more or less than excite natural restorative processes following destructions; and to stimulate excessive growth one has to cause some sort of destruction in the bone that *does not cause mechanical injury to the blood supply of the cartilage.* In other words, if we destroy the vascularity of an epiphesis, we stop bone growth; but, if we destroy the cartilage and bone elements of the epiphesis without destroying the blood supply, we often excite the reparative processes to an overgrowth.

PROCESSES OF BONE REGENERATION.

May we report some recent investigations on the processes of regeneration in infected bone and transplants of bone with some remaining vascularity. Be it known that most observers claim there is a necrosis, actual and complete, in transplants prior to regeneration. Further, there are two holding theories regarding osteogenesis. First, Axhausen has tediously attempted to prove that the young bone that replaces dead or transplanted bone always springs from the periosteum and the endosteum, and that the adjacent connective tissue cells of bone had no osteogenetic significance. Second, Macewen and McWilliams are quite convincing that the greater part of bone repair is due to the action of the bone cells proper.

We have come to the conclusion that the fate of the newly dead bone, be death the result of pressure infection or a transplantation, is directly determined by the ensuing vascularity. We believe that the adult, original bone cells die in either case, or, if they are fortunate enough to survive, they never regenerate bone. Certainly the connective tissue structures are slow in detruction and in case of regeneration are splendid framework for new bone tissue.

An osteomyelitic destructive area undergoes the following changes. The bone cells die. This is evidenced by the dullness, granulation and staining changes. Death is sudden, for the nuclei are small and uniform in shape. At the beginning of osteogenesis we first see action in the connective tissue cells and the endothelial cells *around the blood vessels.* Here probably life was longest maintained. The periosteal and endosteal vessels, either in the adjacent bone cells or most likely in their own lining cells, show the first signs of regenerative changes. We see just without the capillary some young bone cells making their advance into the cell spaces. Such cells have large nuclei. Soon the new bone cells occupy the spaces of the old bone cells. The occupation is transient, however, for the young cells undergo a figure-of-eight change, and then a nuclear division. The walls of the lacunae become changed in contour until they close in about each of the new nuclei and two complete bone cells are formed. These young bone cells are very active producers of bone.

It has never been determined what becomes of the old bone. Hofmeister has shown that the osteoblasts dissolve bone in the process of lacunar absorption by the formation of carbonic acid.

Personally, from the study of infected bone cases we are unable to determine any retardation of repair from infection.

REPAIRED BONE IS ALWAYS DENSE.

One more general statement of fact. After trauma and sepsis the osteoblastic action always tends toward the production of compact bone and seldom to cancellous bone. Even the osteoblasts in spongy bone are so changed that they no longer generate cancellous bone but soon are found to produce compact bone. Let a focus of infection develop in hard bone of ordinary density and we always find that that bone later becomes more dense. In other words, all artificial and pathologic osteogenitic changes in either spongy or hard bone tend to the hardening of bone.

MODES OF TREATMENT OF BONE SEPSIS.

Standardization of the lines of treatment have made more satisfactory the results in bone sepsis. We believe we have reached surer ground as our physiologic vision has improved. Until recently the usual treatment as practiced, without its various modifications, has been something after this manner. The acute infections have been incised when diagnosed, the bone has been opened and drained; either a sinus has followed or after a lapse of time other acute exacerbations have arisen, as the cases proceeded to a chronic osteomyelitis. Then followed an operation for sequestrotomy and currettment, and finally resulted the last long stage of packing month after month to secure granulation and healing. Something must have been wrong, or partly wrong, with our reasoning or technic in the various stages, for we well know that only now and then did we see these poor cases get well and stay cured.

The general criticism of this classic treatment, as we now see it. appears to be that in *the acute osteomyelitis we have not gone far enough* with our surgery, and *in the chronic types we have done too much damage.* In the *acute fulminating types* we have drilled a few holes into the shaft of the bone, relieved the intense pressure and considered our accomplishment sufficient. We are sure now that, by the time a sepsis in bone has reached the intense symptomatic stage, the infection has usually broken its local bounds and involved the medullary cavity, the cancellous bone and often new areas in the hard bone of the shaft.

Gun shot wounds of war increase the relative frequency of *local* bone infection; the proportion of local to general infections for the time is greater than in the run of peace time practice. Still our experience with war wounds convinces us that a local infection in a bone is quite prone to spread sometime during its course to even remote parts of the shaft.

I remember several cases like the following. A private from North Dakota who was shrapnel-wounded overseas, receiving a moderate wound in the upper third of the left femur, was given the antiseptic treatment with apparently good results. His wound healed and he was sent home to America. But in passing thru New York he was stricken with great pain in the condyles at the lower end of the same femur and, upon reaching a General Hospital a day or two later, he presented a serious infection which soon developed into a knee involvement as well, that for weeks threatened his life. The point I wish to make is that the careful, thoro surgery that must be done upon infected bones ought always be early in the acute stage. The greatest curse of bone sepsis is that its infection is difficult to reach, pockets are multiple and always hidden in difficult locations. The aim of treatment should be complete drainage.

Rational treatment of acute bone infection seems to consist in long incisions thru the proper route of choice down to the shafts of the bone involved. Then the chiseling out of a long channel about four-fifths of the length of the shaft and as wide as the medullary cavity. Pains are taken to remove as little of the medullary cancellous bone as possible. Only in unusual infections is the important cancellous structure of the medullary canal markedly intefered with. With the medullary cavity opened it has been common custom to curette. It is the conviction of many that the curette has been bringing the house down upon our heads all these years. The curette has been scraping out the cancellous bone and endosteum with their living and dead bone cells; has been removing the best osteogenetic tissue of bone that we have and has thrown all the bone repair upon the compact and sometimes flinty bone that at best repairs very slowly. Instead of curetting we believe it better to make a practice of first sponging out the medullary channel with the greatest care, free it from all loose spicules and debris, and then thoroly irrigate its network of spongy bone with sterile water. It is questionable whether antiseptics have any place here, altho many are advocated.

After this toilet, a probe should be used to explore remaining marrow spaces, including the cancellous areas within the epipheseal lines. Then a drill is used to reach any areas in the compact structures under suspicion from x-ray studies. Our practices are to reflect the skin in conclusion and sew the wound open. We do this with impunity, for there is not the necrotic drift where spongy bone is exposed to the air that there is with compact bone. No dressings are applied but the limb arranged for open air exposure. Dressings dam back secretions and defeat our aims. The after care consists of copious flushings daily. The chances are that, if the operation is performed fairly early, a good many osteoblasts remain alive in the spongy bone. If they have all died new ones supplant them rapidly and in a relatively short time, even in the presence of the remaining sepsis, there is great bone regeneration. Under these conditions it is not unusual to see complete shaft regeneration in three or four weeks.

A word regarding the antiseptics in bone infections. We have followed thru the enthusiasms of pure carbolic acid and alcohol, the various strengths of iodine and more recently the chlorine preparations. Antiseptics cannot ordinarily reach the infection, nor can they ever reach all the foci. In the early stages of osteomyelitis they probably all do harm to living bone cells and in the chronic types they seem to be valueless. To repeat, the antiseptic cannont act antiseptically to advantage on account of the bony barriers to the pus pockets.

There seems to be some place for Hoffa's irrigation with strong iodine solutions, where a sluggish lining leads the way down to some immaterial secreting surfaces as a small denuded piece of bone. Such irritation often is very stimulating.

TREATMENT OF CHRONIC OSTEOMYELITIS.

In chronic osteomyelitis, where we have a sequestrum and involucrum formation, our operative measures consist in widely laying open the shaft to allow the delivery of the sequestrum, and then some further and most important operative measures to eliminate the resultant cavity. In chiseling thru the shaft and removing the sequestrum, the same care should be taken as in the acute cases to preserve all the spongy bone and the new bony formations that are already present in the cavity whenever they are in the right locations. Here, too, much mischief can be done by overzealousness. Personally we are very happy in those cases where we can leave the wound well covered with natural spongy endosteum, and have special dread of the cavity of glistening compact bone so sure are we of a protracted aftertreatment.

In combating big cavities in bone there seems but one method of real value, and that is the filling of such depressions with the surrounding native muscles and fat by means of flaps with pedicles. In preparartion for these flaps it is well to remember the hardening changes likely to take place in the remaining shaft—a smaller shaft revolves with greater textile strength—and so it is possible very often to chisel away much of the cavity and convert the depression into a wider concavity without imperiling the strength of the bone. In filling these big cavities one should try to take only portions of muscles, where bisection transversely is necessary. We have found it well to remember that most all muscles receive a nutrient artery about one-third the distance from the muscle's origin to its attachment, and intefere as little as possible with this. Now and then it is an easy matter to switch a muscle belly into a broad concavity without interfering with the muscles continuity. However, when so done, the muscle has to be sewed in place. Of great importance in reckoning on the use of these natural flaps is the selection of the route of incision into the shafts of bones, and, while the posterior routes may be much more difficult, it usually is well to so select a route where the implantation of muscle and fat will be least difficult. Experiments with healing show that after the lapse of three days the flaps are covered with healthy granulations which unite with those that are sprouting from the bone and so assist in oblerating the cavity.

The abundant blood supply of the muscular flap is its appealing feature. The flap seems vastly superior to the older methods of filling cavities with blood clot, pastes or the various kinds of bone chips. Several writers have recently been contending that "blood clots altho thoroly aseptic are of no particular value in inducing more rapid filling of cavities." We are almost convinced that it is the granulation tissue, later becoming infiltrated with cancellous bone, that fills the cavity, and the blood clot is merely an incident to the process. The other methods of filling cavities with foreign materials and even bony substances has been unsatisfactory and is fast becoming obsolete in bone surgery.

To summarize briefly, our more recent observations in bone sepsis have forcibly convinced us, first, that the vascular and osteogenetic structures of bone—the periosteum and more specially the cancellous bone with its endosteum—are the all-important structures that we must conserve in both the acute and chronic types, if such salvage is possible and the aim is rapidity of repair. Second, that complete drainage, with emphasis upon "complete" is much more potent than antiseptics in limiting osteomyelitic infection. Third, that sepsis often is a stimulant to osteogenesis. Fourth, that surgery upon the chronic types had best be postponed till the third or fourth months or until the ulcerative stage is well advanced into the most active natural period for repair. And, fifth, that resultant bony cavities have their very best means, in obliteration in the flap procedures.

THE SURGICAL TREATMENT OF TRIFACIAL NEURALGIA.*

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The treatment of trifacial neuralgia has resolved itself into one of surgical intervention. The accepted operative procedures are as follows: Deep alochol injection into the peripheral branches and ganglion, avulsion of the peripheral branches, or division of the posterior root.

The etiology of trifacial neuralgia is unknown. Frazier has stated that the condition may be due to a sclerotic lesion of the ganglion. Dana ascribes the probable cause to degenerative changes in the ganglion, while Patrick does not believe that either of these are causative factors. Sir Victor Horsley believed that it was due to an ascending neuritis from dental infection, but this view has been objected to by a number of physicians on the grounds that no anesthesia nor motor paralysis are present in patients suffering from tic douloureux. Sluder has reported cases that he believed were due to sphenodial infection and, as the patients had recurrence of pain, he attributed this recurrence to infection. However, various patients have been observed at the Mayo Clinic who have had teeth removed, or repeated drainage of the antrum and accessory sinuses, or spurs removed from the septum, and who still complain of recurring attacks of trifacial neuralgia.

The striking symptoms, which distinguish the condition from almost all other pains about the head and face, are the severity and shortness of pain brought on by slight peripheral irritation, such as eating, talking, drinking, exposure to drafts, brushing the teeth or washing the face. Patients describe this pain as a shooting, stabbing, jabbing, flash-like, darting, or burning, as if a red-hot poker had been jabbed into the face. The pain differs from that caused by sinus or dental infection as it is not constant, usually occurs during the waking hours, and follows the course of one or more branches of the fifth nerve. The pain is brought on by touching the trigger zones, for example, as described by Patrick, "touching areas over the mandibular division may produce attacks of pain in the ophthalmic and supramaxillary divisions."

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*Read before the Thirtieth Annual Meeting of Washington State Medical Association, Spokane, Wash., Sept. 11-13, 1919.

Trifacial neuralgia usually occurs at about middle life; however, Patrick reports a case in which the patient was seventy-five years of age. There are no predisposing factors and, while some patients are neurotic, others are not. The disease is not hereditary; however, there are cases on record in which several members of the same family were afflicted.

THE INJECTION OF ALCOHOL IN THE TREATMENT OF TRIFACIAL NEURALGIA.

Alcohol injection was first described by Pitres and Verger, in 1902, and by Schlosser, in 1903. Hartell, in 1914, described the technic foı injecting the gasserian ganglion with alcohol, and since then numerous articles have appeared on the subject. The technic that has been more generally followed was described by Levy and Baudouin, in 1906, and slightly modified by Patrick, in 1907. The alcohol treatment is indicated when the diagnosis is not clear, since, if the condition is a true trifacial neuralgia, temporary relief will be obtained. It is also of value in the treatment of patients who are poor operative risks, or who are being prepared for the radical operation. The results are only palliative; the average time of relief afforded is nine months (Patrick), and as repeated injections are administered the relief becomes of shorter duration. It is true, that in a few instances relief has been afforded for three or four years, but these are exceptions to the rule.

The following technic for the injection of alcohol is quoted from Patrick: "The needle used is about 8 cm. in length and 1.5 mm. in diameter, and is of the trocar and cannula type, the cannula being graduated in centimeters in order to indicate the depth reached. Before inserting the needle the skin is cocainized; as soon as the proper depth has been reached, the trocar is replaced by a glass syringe, fitted into the cannula, and about 2 cc. of 80 per cent. alcohol solution injected. The patient usually experiences pain when the nerve is approached, but this is quickly followed by numbness. The mandibular branch is injected at its exit from the foramen ovali and is reached by placing the needle thru the skin at a point 2.5 cm. in front of the descending root of the zygoma which almost coincides with the anterior bony border of the external auditory meatus. The needle is directed slightly upward along the base of the skull and a little backward at a depth of 4 cm. The superior maxillary division is injected by placing the needle thru the skin, 0.5 cm. posterior to the external angle of the orbit underneath the zygoma, directing it vertically to the anteroposterior line but inclined slightly upward in a direction which should attain the nerve, at a depth of 5 cm., at its emergence from the foramen rotundum."

AVULSION OF THE PERIPHERAL BRANCHES.

Avulsion of the peripheral branches has been practiced by a number of physicians but, like the alcohol injection, it offers only temporary relief; the average time of relief afforded is eight months (Beckman); besides it is a difficult procedure to repeat, as pain frequently recurs before the peripheral branches have regenerated. In patients of advanced years avulsing the supraorbital and supratrochlear nerves is occasionally justifiable, as the alcohol injection of these branches is not as satisfactory as is the injections of the supramaxillary and mandibular branches.

In April, 1890, Rose removed the gasserian ganglion for the relief of trifacial neuralgia. He approached the ganglion thru the floor of the middle fossa, but, on account of the serious complications in the way of bleeding and paralysis, he was compelled to abandon the procedure. In 1898, Hutchinson advised a partial resection of the ganglion; he resected the outer two-thirds, including the second and third branches, thus saving the ophthalmic division and preventing eye complications. While this operation relieves patients who are suffering from neuralgia in the second and third branches, it does not relieve those who have an involvement of the ophthalmic division; besides, this operation is attended with serious bleeding. Spiller, in 1898, suggested the division of the posterior root, a procedure known as the "physiologic extirpation." In 1900 and 1901, Spiller and Frazier carried out a series of experiments, demonstrating that regeneration did not take place in the posterior root after it was divided. Their work was corroborated by Van Gehuchten, in 1903, and in 1918 Frazier reported a series of cases in which successful results had been obtained by the division of the posterior root.

The complications in the various ganglion operations have been serious hemorrhages, paralysis of the third, fourth and sixth cranial nerves with occasional involvement of the whole seventh nerve, ankylosis of the jaw and trophic interstitial keratitis. With improved methods of surgical treatment, however, hemorrhages are more easily

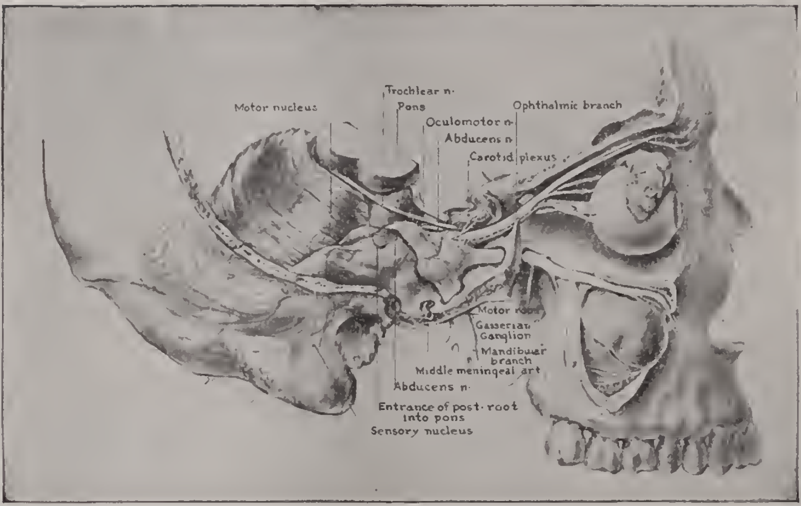

Fig. 2—Relation of ganglion to surrounding structures and communications between carotid plexus and ophthalmic portion of ganglion.

controlled by the use of a knot-tier for the ligation of the middle meningeal; a ganglion retractor equipped with a small light for the exposure of the ganglion, and the application of small dental packs in dissecting the dura from the bone. Paralysis of the ocular muscles may be avoided by holding the dura taut and not resting the ganglion retractor on the cavernous sinus. By making the skin incision 3 cm. posterior to the external angle of the orbit, the frontal branch of the seventh nerve is left uninjured. Paralysis of the seventh nerve has been avoided also by not stripping the dura over the petrous bone, or by cutting the posterior root instead of avulsing it, thus preventing injury to the pons (Adson). Ankylosis of the jaw is rarely seen since the adoption of Frazier's incision in place of the Hartley-Krause incision, as the temporal muscle is thus split instead of incised. The occurrence of trophic interstitial keratitis has also been greatly lessened, since the dura propria it not opened except over the posterior root where the fibers are cut, in this manner eliminating extensive exposure of the ganglion and avoiding injury to the ophthalmic portion of the ganglion which either has a trophic supply to the cornea or sympathetic communications with the carotid plexus protecting the cornea against ordinary irritations and slight abrasions.

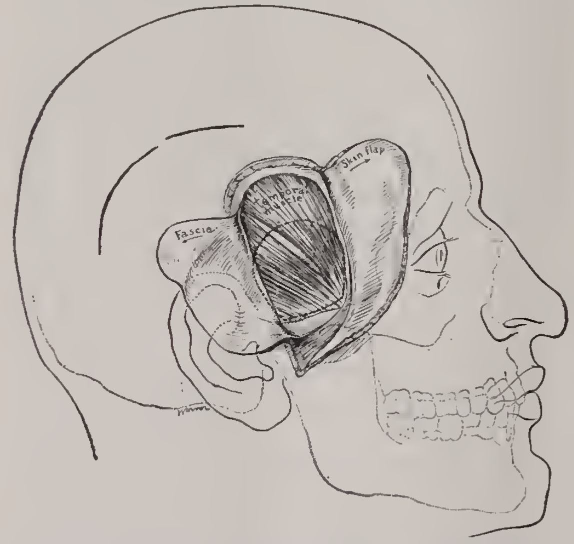

Fig. 1—Shows approach to ganglion. Skin flap is turned forward, fascia flap backward and temporal muscle split in direction of fibres. Decompression following is indicated by heavy dotted line.

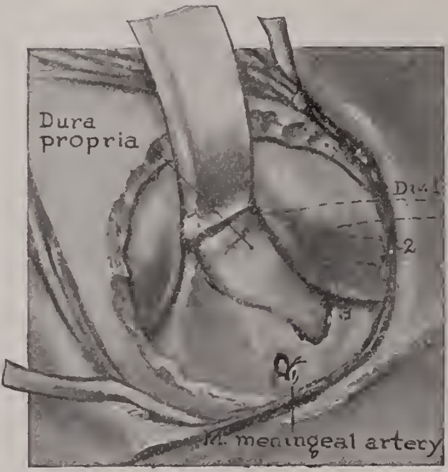

Fig. 3—Exposure of third branch of right trigeminal nerve, gasserian ganglion and ligated middle meningeal artery.

OPERATION.

The patient is placed in a semi-erect position with the head on a special headrest which may be raised or lowered to the position desired. A

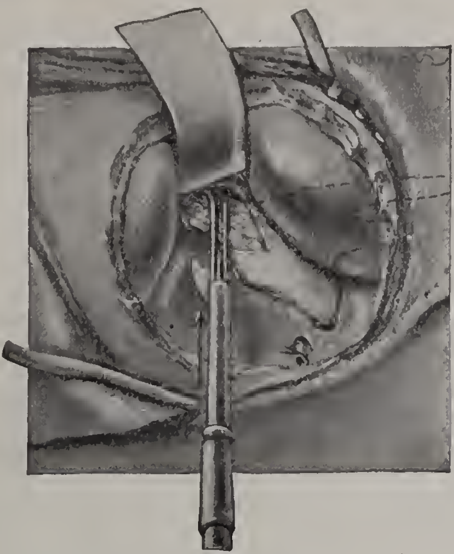

Fig. 4—Posterior root brought into view after division of dura propria preparatory to cutting posterior fibres.

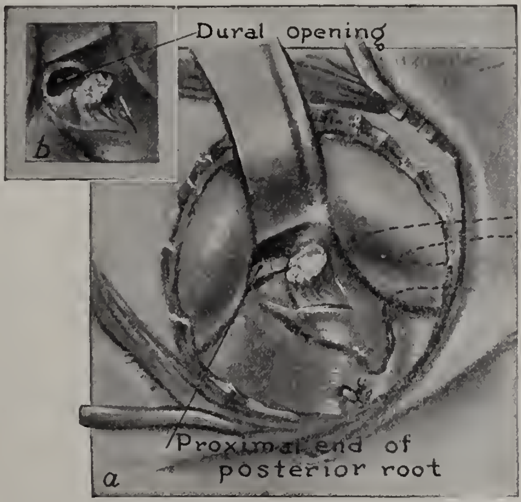

Fig. 5—a. Cut ends of posterior root of gasserian ganglion. b, Dural foramen over petrous portion of temporal bone through which proximal fibres of posterior root have dropped into posterior fossa.

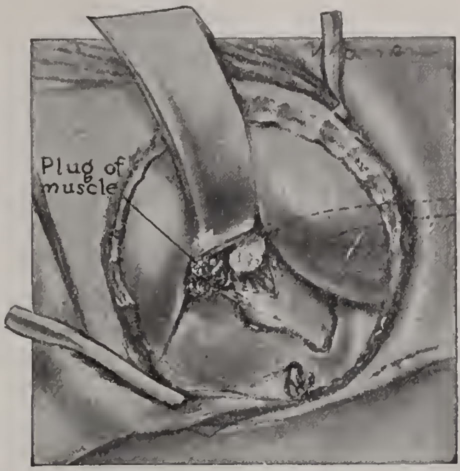

Fig. 6—Inserting pledget of muscle into dural foramen between severed ends of posterior root.

general anesthetic is used. The anterior limb of the question mark incision over the temporal region and down in front of the ear to the zygoma begins 3 cm. posterior to the external angle of the orbit and 3 cm. above a line drawn parellel with the zygoma. The skin flap is turned forward and the fascial flap covering the temporal muscle is turned backward, both being carried down the zygoma. The temporal muscle is split and the skull exposed by a mastoid retractor. A subtemporal decompression is done, and an area of bone about 3 cm. by 3 cm. is removed. The dura is gently elevated from the middle fossa until the meningeal artery, which we prefer to ligate, is exposed. The foramen is plugged with bone wax, followed by further elevations of the dura until the posterior margin of the third branch appears. Dissection is then carried posteriorly and inward, exposing only the posterior margin of the ganglion; the dura propria is not opened until the region of the posterior root is reached, thus avoiding injury to the ganglion, particularly of the inner portion, the cells controlling the ophthalmic branch. Before the dura propria is opened directly over the posterior root, all bleeding is controlled. The dura covering the brain is held under gentle tension and the cavity is well illuminated by means of the ganglion retractor. After the dura has been opened, the fibers of the posterior root are gently exposed and slightly elevated, and the guillotine knife is slipped over the fibers which are to be cut; thus any trauma of the pons or brain stem is avoided. The cavernous sinus is rarely injured, inasmuch as all the anatomic marks may be seen clearly. The fibers of the posterior root just above the ganglion are turned down over the ganglion, while the proximal fibers are pushed back into the posterior fossa. A small pledget of muscle is inserted into the dura foramen as a plug; this assists in making a barrier between the severed ends and prevents the extensive loss of cerebrospinal fluid that usually follows when the patient recovers from the anesthetic. If there is any danger of bleeding, it is well to insert a narrow strip of iodoform gauze, and remove it on the third day. The muscle and fascia are closed with interrupted sutures of chromic catgut No. 1. The skin is closed with interrupted sutures of silk, which are removed on the fifth day. During the operation, the eyelid is closed with adhesive, which is replaced by a Buller's shield before the patient leaves the ope-

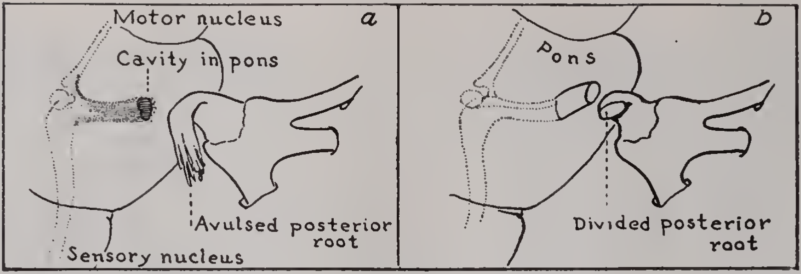

Fig. 7—a. Indicates trauma produced within pons by avulsion. b, Division of posterior root by cutting without causing trauma of pons.

rating room. The shield is worn for a week or ten days and subsequently is exchanged for close-fitting automobile goggles, to be used whenever the patient is exposed to wind or dust. In addition to wearing goggles, we advise irrigations twice daily with 2 per cent boric acid solution.

I am convinced, after dividing the posteior root in sixty-seven cases of trifacial neuralgia during the last two and one-half years, that patients can be relieved of this disease by the above procedure without any serious complications, and I strongly advocate that patients be encouraged to have the radical operation performed in preference to the alcohol injection or avulsion of the peripheral branches, unless there is some doubt concerning the diagnosis, or if the patient is a poor operative risk, or requires preliminary preparation.

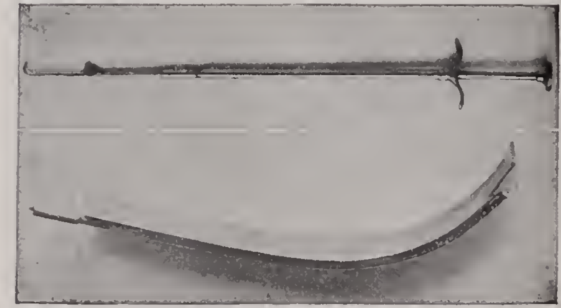

Fig. 8—(above) Guillotine knife.
Fig. 9—(below) Ganglion retractor.

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EIGHTEEN MONTHS EXPERIENCE WITH RADIUM*

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Our experience with radium has extended over a period of a little more than eighteen months, if we include the time we were connected with the U. S. Army. During this time we have had occasion to employ it in a large number of malignant and a less number of non-malignant conditions.

Our object in writing this paper is to bring to the attention of the general practitioner the everyday use of radium rather than to offer a technical paper for the radiotherapist. With this in mind and that we may the better understand the therapeutic action of radium we will give a brief outline of the physics of radium.

PHYSICS OF RADIUM.

In the first place we must understand that we are not using the element radium but a salt of radium. Radium has three rays, (and by some four), named from the letters of the Greek alphabet, alpha, beta and gamma. With appropriate screening it is possible for us to absorb the alpha and beta rays in irradiating a given part. In elemental radium the alpha rays constitute about 90 per cent of the total energy of the radium; the beta rays about 9 per cent; and gamma about 1 per cent. The alpha rays are positive, while the beta are negative, and both may be deflected by the magnet, the former to the left and the latter to the right. This physical characteristic makes it possible for us to overcome these rays in our therapeutic endeavor by suitable metals used as screens. However, since we are not dealing with elemental radium we are enabled to get a vastly different percentage of rays in the varnished applicators. The radium salts are spread out in the plaque and then suitably varnished. In this way we have the alpha rays comprising about 1 per cent, the beta rays about 90 per cent, and the gamma rays about 9 per cent.

The alpha rays being easily absorbed and their effects being limited to the superficial tissues, we may eliminate them from further consideration. The beta rays are one hundred times more penetrating than the alpha and are the burning rays. They consist of two rays, the soft and the hard. The soft rays closely resemble the alpha rays and act upon the superficial structures; the hard rays have a considerable penetrative action and must be considered when treating cases. We are now speaking of the primary beta rays, one of the three given off by radium. We have secondary beta rays which are the result of the action of the gamma rays.

The gamma rays are the ones with which we must concern ourselves. It is impossible to deflect or turn aside these rays and their penetration is in a direct line. When we are treating a given surface we must bear this in mind and have our applicator parallel to the part treated. It is due to this direct penetrative action that we are enabled to get our best therapeutic results. It must be understood that, when the gamma rays encounter substances, there are developed the secondary beta rays. For instance, when we screen and the gamma rays strike the metal the secondary beta rays are developed. This likewise holds good when the gamma rays encounter tissue. The gamma rays have a selective action for diseased cells and, with like the roentgen ray, they have a deeper penetration. These rays are constantly being given off and we are unable to control them, in so far as conserving them. We can only direct them and in this way make them subject to our therapeutic endeavor. With this very superficial and casual outline of the physics of radium we pass to the more practical side of our subject.

CASES TREATED.

Cancer. By far the greater number of malignant conditions treated by us have been lesions found on and about the face. The most frequent lesion has been the basal-cell epithelioma. Kelly states,[2] "Let us begin with the most obvious of all cancers, as well as the commonest, those which begin in the skin of the face, called basal-celled epithelioma. These start in one of the little horny scurfy patches on the face or hands, or in a little greasy spot, looking like an inflamed patch of sebaceous gland, slightly elevated, pale, somewhat clear looking, inclined to itch and tending as it advances to break down in the center, to bleed a little, and to form a scab. From this small beginning it spreads with infiltrated, harder, slightly elevated margins, as it grows progressively larger, until in time it covers the entire face, and invades at last the deeper tissues, causing in its march the destruction of the ear, the eyes, and the nose, all the time exhaling a frightful fetid odor."

"Cancer of the skin furnishes a brilliant field for radium therapy."[3] "Taken early the treatment of these face cancers is most successful, and consists in either radium or surgery. I mention radium first because it is far preferable to surgery, as radium in the early cases resolves the tissues back to normal without loss of substance or disfigurement. Radium is also better because of the frequency with which the lesion is located near the ear, nose or eye."[4]

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The results obtained by us have been uniformly good. In some of our cases sufficient time has not intervened to enable us to state that our patient is permanently cured. However, the photographs of this type of case show the splendid results obtained and we are firmly convinced that, under our policy of keeping these patients under observation for several years, we will be able to record permanent cures.

Lupus Erythematosus. Another type of case in which we have gotten splendid results is lupus erythematosus. We have been able to bring this condition under control and in two especially marked cases, where the roentgen ray has been employed for a considerable time, in one case running over a period of one year, we have been able to eradicate the condition completely. We are not so sanguine about the recurrence of these cases. We feel, however, that if they do recur the outbreak will not be so extensive nor so difficult to overcome.

Lupus Vulgaris. We have treated one case of this condition in a little girl of three or four years. The condition is completely under control and we hope that by close observation we shall be able to prevent its recurrence.

Nevus Flammeus. At this time we have under treatment a case of nevus flammeus or port wine mark. We have employed the combined method of the Kromayer lamp and radium. We find that we are able to overcome the condition up to a certain point with the Kromayer lamp, beyond which we are unable to get satisfactory results. We now employ radium, giving short irradiations, without screening and we are able to get better results. The condition covers the entire left side of the face and extends beyond the median line on the forehead, bridge of the nose and chin. Under the eye was an area which gave us considerable trouble until we began the use of radium. We are greatly pleased and hope in the end we shall be able to get a satisfactory and good cosmetic result.

Leukoplakia. We still have another type of case in which we are employing radium. The patient is a young married woman who has had children, gives no history of syphilis and the Wassermann on several occasions has been persistently negative. We gave her a provocative dose of arsphenamine and had a Wassermann made which in turn was negative. This case of leukoplakia is well marked and is found upon the dorsum of the tongue. The radium is being used but it is too early to state anything definitely but we are greatly encouraged, for there is a gradual disappearance of the whitish configuration. We expect to give a later report upon both this case and the one of nevus flammeus.

Keloids. We are treating keloids with the combined method of carbon dioxide crayon and radium. We find that by using the carbon dioxide crayon we can greatly expedite the cure. We use the crayon until the keloid is considerably reduced in size, then employ radium. We present one case of unusual type. We have not been able to get the patient to sit for the completed result. She has passed from under our observation but we hope to get the picture of the final result. We place such credence in radium that we use it as the final therapeutic remedy. We have taken off many keloids by the simple use of carbon dioxide crayons, but in some instances they have returned, so that we decided to use radium in the case under consideration.

TECHNIC.

A word about technic employed in treating lesions. The object of the radiotherapist is to reach the deep layers of tissue without destroying the healthy tissues. In beginning our work we were more or less timid in its application but as we progressed we began to understand the action of the radium rays and, keeping constantly before us the result above desired, we gradually developed a technic which in our hands has given very satisfactory results.

It must be understood that we do not tie to any particular technic and we are of the opinion that one can get as good results from his own as if he followed that of another radiotherapist. There are certain hard and fast rules which we should constantly keep in mind if we hope to get the desired results. For instance, when we speak of the use of radium we should refer to the radium element content in the applicator and not to an indefinite amount of radium.

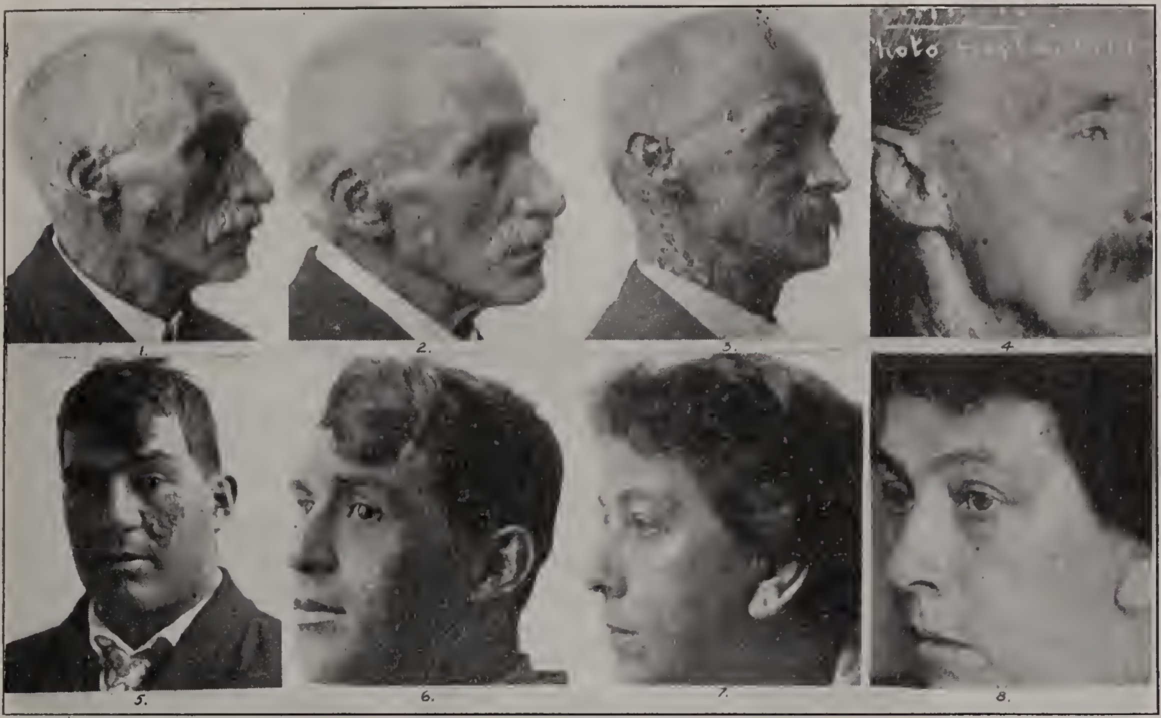

Fig. 1—Rodent ulcer involving right cheek. Fig. 2—Result after using radium six milligram hours. Fig. 3—Rodent ulcer anterior to ear on right side. Fig. 4—Result after using radium four milligram hours. Fig. 5—Basal cell epithelioma involving left cheek. Fig. 6—Result after using radium ten milligram hours. Fig. 7—Keratosis senilis located on left side of forehead above left eye. Fig. 8—Result after using radium four milligra

In maligant diseases we must first attempt to reach the deep tissue, which is accomplished by screening. Later in the treatment we can give the full effect of the radium to the superficial tissues. In the fungating type of epithelioma we give a massive dose. Again, where there are large masses of malignant tissue we employ the cross fire.

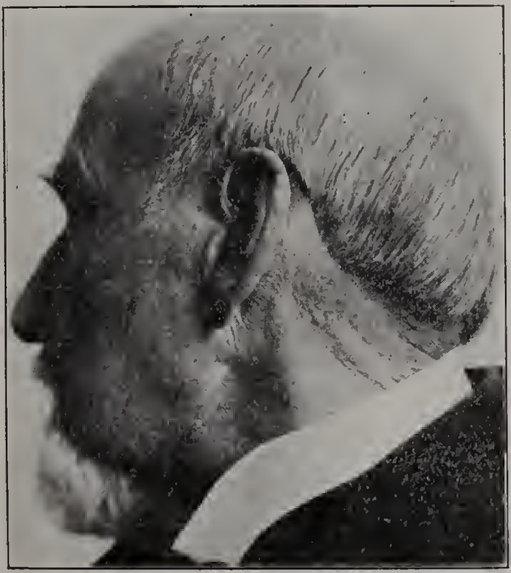

Fig. 9—Result after two and one half years following treatment by radium. This was a rodent ulcer involving neck below left ear.

In our work, where we wish to make short applications, we employ the ordinary rubber used by dentists in making artifical dentures. This is sufficient to absorb the alpha and take care of the beta rays for this short exposure period. We make it a rule to enclose the applicator in rubber dam, the idea being to keep its surface clean, and then apply over the plain rubber as stated above. In an exposure as here mentioned we expect an erythema. If we wish to make a deeper reach and yet wish to exclude the beta or burning rays, we can make repeated short exposures, covering a definite number of hours on separate days. We would suggest that, where one begins the use of radium, the operator make his exposures and then wait to see his results. It is better to do this than overexpose the part and get a severe burn.

In deeper work the operator makes use of screens. These are of different thicknesses, depending upon the length of time the part is to be irradiated and the amount of radium employed. In order to protect sound tissue windows of lead or other suitable material may be made use of. The ingenuity of the operator will readily suggest the best way in which to make these windows. We must understand that, when the gamma rays strike this screen, we have secondary beta rays which carry on the therapeutic effect of the gamma rays.

We find it is very much better to determine before hand the number of milligram hours and the amount of radium to be employed which we wish to use in irradiating a lesion and then employ the radium in fractional doses. This time period may be extended over several days. We must be careful not to overlap margins in an exposure of this nature. We seldom employ massive dosage, except in fungating epithelioma, and are content to take a little longer time in our treatment with the hope of obviating a severe burn. We usually employ a large amount of radium rather than a smaller amount, for the latter may cause harm rather than a remedial effect. In epithelioma of the face type, where the lesion has not involved the adjacent glands, we make use of a 10 mg. half strength. If the growth is larger and if the glands are envolved, we use 25 mg. or two tubes of 25 mg. each and cross fire the part. We have seen the glands undergo recession in cases of this type, without any other treatment than the radium applied to the epithelioma.

The operator should not be in too much of a hurry to get results. He should warn the patient not to expect results within a period ranging from ten days to several months, unless it is the relief from pain or diminishing the foul odor. He must understand that the effect of the radium continues for some time after its application.

We have been struck with the universal splendid cosmetic effect following radium. In our work this feature demands our most careful consideration. Of course in malignant conditions we pay less attention to this feature but a method which will give relief and yet enable us to conserve the facial features is a desideratum well worthy of consideration.

Simpson says, "radium shares the field with roentgen rays in the treatment of intractible disorders of the skin. Often a combination of roentgen rays and radium is desirable. In some diseases roentgen rays are much more convenient and efficient than radium, while in a certain restricted and peculiar field of dermatology radium holds an absolutely unique position."[5]

Kelly[6] says, "The sum of the whole matter seems to be this, that greater zeal is needed on all sides in getting hold of our cancer cases earlier, and equally greater zeal is imperative in getting them operated upon or treated with radium at an early date." We are of the opinion that radium should be employed oftner and earlier. We not infrequently see cases in which the condition has become inoperable and the patient is told that nothing can be done for him. This is a mistake. These cases can be helped; the relief comes from pain; the patient is made more comfortable and the literature is quite extensive, showing cases of this inoperable character which have been relieved entirely by the judicious and scientific use of radium.

Further, take these well advanced cases of malignant diseases. We believe that better results await the surgeon and the patient, if the condition is irradiated sufficiently before operation is undertaken. We often employ other measures which reduce in size and extent the condition before the knife is employed and we believe that the use of radium is upon the dawn of a great era in prophylactic employment. In the London Radium Institute reports for several years, a number of inoperable cases are mentioned which bear out this conclusion. We feel reasonably sure that employment of radium after operations in cancer offers a field which is yet wholly untouched.

It is our hope in giving this experience with radium that it will stimulate others to make use of this remedy; that the physician will avail himself of a remedy which has proven its worth; that he will not hesitate to bring this treatment to the attention of his clinentele in order to reduce the morality in cancer; that the patient will learn that the best way to prevent cancer is to secure relief during the precancerous stage.

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ADDISON'S DISEASE A case of characteristic Addison's disease with definite postmortem findings is reported by M. J. Balen, Philadelphia (Journal A. M. A., Jan. 10, 1920). The lungs showed numerous military tubercles and several small areas of calcification in the upper lobes with ulceration at the apex of the left lung in addition. The suprarenals were greatly enlarged with only minute islands of the original gland tissue remaining. There were also numerous small typical tubercles in the cortex.

SURGERY VERSUS RADIUM OR X-RAY IN TREATMENT OF UTERINE FIBROIDS

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I wish to report a series of 100 consecutive hysterectomies done at St. Luke's Hospital. I have intentionally left out myomectomies or any cases done at other hospitals or in neighboring towns. The object in this is to convey my views regarding treatment of uterine fibroids, as recent literature is teeming now with articles on the subjects of roentgen and radium treatment. While I in no way condemn these methods, for my experience in the former is limited and not altogether satisfactory, and in the latter is limited entirely to the literature on the subject, I feel surgery has been and is the most rational treatment for this condition.

Deaver[1] says: "We have seen the roentgen ray advocated and have noted some success in its employment for the control of the associated metrorrhagia of fibroid tumors of the uterus. We have had authenticated cases, not only of symtomatic improvement, but also of material diminuation in size of the tumors so treated. We all hoped for a time that an absolutely safe and specific remedial agency was in our possession. Now sufficient time has elapsed for us to conclude that many failures are to be expected with the roentgen ray treatment, that a certain amount of positive harm can come from it and that a vast amount of harm can result in this form of delay of radical treatment in cases where that alone offers any prospect of cure.

Now we are confronted by radium, for which more extended claims are made, and we are asked to believe that it will not only control the symptoms, but also cause the disappearance of the growth in many instances. It is, therefore, well to review our results with operative treatment in order that we may see whether the profession is justified in running after this new prophet, which to our mind is about to prove itself as false as those which have preceded."

Dr. Clark[2] makes the following statement: "In our study of results in women within the menopausal years, certain facts stand out in relief. Among the most obvious are these. The tumor must be uncomplicated with coincident inflammatory disease; it must be causing hemorrhage, and it should not be too large. In our cases, when pain, even without conincident evidences of inflammatory disturbance, has been present, it is seldom relieved, even tho the tumor largely disappears; and in other instances in which there was old salpingitis, a flareup of a quiescent process has occurred. In two cases a subsequent operation was necessary. In one a hysterectomy and in the other a vaginal puncture of a large pelvic abscess was necessary to relieve the patient. These two instances alone in our large series would not cast discredit on this procedure, if all the other patients suffering with pain had been relieved of this symptom, as the tumor decreased in size and menorrhagia ceased. Such, however, has not been the case, and we have, therefore, established a rigid rule that no patient suffering with pain lateral to the uterus is to be radiated. We choose an operation instead, for we can then ascertain the extent of the pathology and treat it conservatively or radically, according to the indications.

In this connection we desire most emphatically to protest against the use of radium in the treatment of any acute or quiescent inflammatory case, whether associated with a myoma or standing alone. One of my esteemed colleagues, a radiologist, informs me that this point should be emphasized especially, for already an occasional enthusiast asserts that radium may be beneficial in the treatment of pyosalpinx. This degree of optimism is very dangerous, and cannot too quickly be discredited, for we have already observed its evil."

In this series of cases there were 56 hysterectomies done for fibroids, 21 for carcinoma, 10 for prolapsus, 10 for hemorrhagic conditions due other than to fibroids and cancer, 2 for large hypertrophied uteri and 1 for abscess in uterus containing about a pint of pus which had dissected the mucous membrane from the uterus prosteriorly and upper walls occupying the whole cavity. The diagnosis was not made until it was removed, for I thought it to be a growth in the uterine wall.

Complete prolapsus uteri	10	average	age	52
Carcinoma uteri	21	"	"	45
Hemorrhagic	10	"	"	38
Abscess	1	"	"	40
Hypertrophied	2	"	"	49
Fibroid	56	"	"	42
Complete hysterectomies (abdominal)	21			
Complete hysterectomies (vaginal)	10			
Subtotal hysterectomies (abdominal)	69			

Out of these one hundred hysterectomies there were twenty-nine that had other work done at the same time.

Perineorraphy	20
Cholecystectomy	3
Cholectomy	1
Hemorrhoids	1
Double bunions	1
Breast amputation	1
Tonsillectomy	2

This does not include appendectomies and associated pelvic work but other distinct procedures. There was not a fatality in any of these twenty-nine cases. My mortality in this series of cases was three. This includes deaths from all causes occurring while in the hospital. All of these fatalities were cases of cancer, where very extensive operations (Wertheim's hysterectomy) were done. Two died from shock eight and twelve hours following operation and the third from suppression of urine. To one of these that died of shock it was necessary to remove the fundus of the bladder and transplant one of the ureters.

Stacey[3] states, "Myomas occur in twenty per cent. of all white women who have reached the age of thirty-five and thus occur during the child bearing period."

There are many hysterectomies done for fibroids which should not be and these too should not be treated by radium or the x-ray but by myomectomy. There is no doubt in my mind that I have made this mistake, but have practiced whenever possible a myomectomy in young women, even tho it was necessary to considerably mutilate the uterus.

This was brought forcibly to my attention a couple of years ago when a young woman came to me with multiple fibroids. The uterus was a knotty mass with growths varying from the size of a lemon to that of a pea. I thought it impossible to do other than a hysterectomy. She had seen two or three of our leading men who had given her the same opinion. She had recently been married, was anxious to have a child and insisted that a hysterectomy not be done, and only with that understanding I operated. The uterus was mutilated most horribly, as most of the growths were intramuscular. I did not believe it possible for her to go thru pregnancy and expressed that opinion after recovery. In the course of eighteen months she gave birth to a large child, born normally. Her attending physician and myself were on hand anticipating trouble, possibly a uterine rupture. This case was quite conclusive to me that all these women should be given a chance, if young or prospective mothers, even tho a hysterectomy or a myomectomy may have to be done later, as it is possible there will be tiny fibroids left which will develop.

Another reason why I consider surgery the best measure for the treatment of fibroids is that, when radium or the x-ray is used, these women not only lose the functions of the uterus, for which it is principally used, but the ovarian function is destroyed, which I believe it is most important to retain. I appreciate there are some good men, altho they are much in the minority, who contend that the ovaries and tubes should be sacrificed at the same time.

We must not forget that the ovary is a complex glandular organ, possessing at least two functions, reproduction and an internal secretion of which our present knowledge is very meager. It has pretty conclusively been proven that the uterus is not essential for a continuation of the ovarian function except in regard to menstruation and reproduction. When they do degenerate after hysterectomy, it is due to some primarily ovarian condition or the disturbance of their circulation. It is my custom not to remove either the tubes or the ovaries when healthy in women near or even beyond menopause, for it is not known when the ovarian activity ceases, as it is thought to continue long after menstruation. I do not believe it is so essential to leave the tubes, but have never seen any bad effects from so doing, and another reason for leaving them is that their removal is likely to interfere with the vascularity of the ovaries. I feel that the weight of endurance furnished by the anatomic, experimental and chemical investigators is overwhelming in favor of retention of sound ovaries both before and after menopause.

Mayo[4] states, "It is not that hysterectomied women become coarser, altho they often gain in weight, but certain physical and nervous conditions take place which may result in unhappiness. The noblest instinct of women, that of motherhood, is at a hazard. Because of the ease and the surgical certainty of hysterectomies, have we not sometimes too quickly advised and practised a mutilating operation? I regret to say that now, occasionally we see a young woman in whom a condition equivalent to hysterectomy with the removal of both ovaries has been brought about by radium or the roentgen ray. To one who takes the view of the whole situation, myomectomy must present itself as the only truly conservative procedure, and becomes the operation of choice for a large number of patients, provided always it can be done without an increase of risk and reasonable certainty as to cure."

Tracey[5] claims "the only way we can hope to improve our results in fibromyoma, complicated by a malignancy, is to educate the profession and the public to the danger of these tumors. Fibroids are not innocent tumors which are cured by menopause. On the contrary they are progressive, insidious neoplasms whose danger increases with the advancing of age of the patient; 87.5 per cent. of the malignancies and degenerations in the tumors in his series were in women over forty years old. Why any man, especially a surgeon, will tell any women past the age of forty, who has a fibromyoma with metrorrhagia not to worry, that she will be cured by menopause, is beyond my comprehension. This may explain why some men have so few malignancies associated with their cases of fibromyomas. He who gives such advice is responsible, if any incurable malignancy develop while the patient is serenely waiting a menopause cure."

Another condition which is sometimes confusing, and often mistaken for fibroids, is old inflammatory conditions in which masses are intimately associated with the uterus. I have a woman in the hospital now who was thought to have a fibroid, but found it to be an old inflamed tube. And then, again, in fibroids undergoing a malignant degeneration or associated with a malignancy, surgery only should be considered, and these conditions are often hard to determine.

In view of the high percentage of the associated malignant disease, Deaver [1] distinctly challenges any form of treatment tending toward delay. Many degenerative changes were discovered at the time of operation in his series of cases. Of the last five hundred and thirteen myomas, one hundred and eleven showed highline degeneration; hemorrhagic, necrotic, calcareous changes or a combination of these were found in twenty-six others. Pus tubes were noted fourteen times. Eight uterine fibroids were associated with cancer; sarcoma of the ovary was also represented. Several associated ovarian cysts when operated upon already showed malignant changes.

Stein[6] says, "The question of radiation versus surgery in the uterine myoma was recently discussed by Cernezzi, in Italy, whose findings are much in conformity with his own. He pointed out that not a few gynecologists, and the great majority of the general practitioners, adopt and recommend a passive attitude with more or less reliance on the roentgen rays in patients in or near menopause, waiting for its favorable influence on the tumor. According to these Italian statistics, there is good reason to modify this optimism, for in no less than sixty-eight per cent. patients who had been radiated elsewhere the symptoms of the myoma reappeared or became aggravated with the result that operation was requested by the patients themselves."

Case[7], in a comparison of the operation and radiotherapeutic treatment of uterine myomas, states, "I have arrived at the conclusion that the ray treatment should not be used with safety in rapidly growing tumors, in fibroids complicating pregnancy or when serious disease exists in the tubes or ovaries."

Operation. In doing these hysterectomies, when the ovaries and tubes are retained, I draw the uterus well up out of the pelvis and apply a crushing forcep close to the body of the uterus down to internal os. The reason for this is to avoid the uterine artery if possible. I am afraid we usually include this artery in the stitch, for it is rather close to the uterus. Especially in the multipara it hugs very close, but this is not of any great importance, as the main ovarian blood supply comes from the ovarian artery, which comes down from the abdominal aorta, as does the spermatic artery in the male. After giving off blood supply to the ovary it runs along thru broad ligaments close under the tube until it reaches the uterus, where it crosses the round ligaments in front and joins the uterine, therefore becoming continuous. These arteries vary much in size; either one may be the larger.

Then I cut to the inner side of the forcep down to the internal os. This being done on both sides, the peritoneum is cut in front and back at a little higher level and bluntly dissected well down on the cervix. Then with a long bladed, pointed knife the cervix is reemed out, in many cases the whole mucomuscular portion. The object in doing so is to prevent, which so often happens later, a cervicitis with a mucopurulent discharge and, too, it lessens the possibility of malignancy developing.

A twenty day gut No. 2 is sewed well down in cervical cavity and same drawn together and tied, leaving long end of suture free for the time being.

Then a soft gut suture No. 2 is tied around tube and round ligament close to forcep, and this running suture is whipped down around the forcep, clamping broad ligament until reaching cervix. Forcep removed and suture drawn taut and tied to the distal end which puckers up the broad with round ligaments and tube. These are drawn over the cervical stump with soft gut; the loose end of the chromic gut tied in cervix draws it up and this suture is passed around both round ligaments and tied, not making them too tight, which will aid in restoring the support to the pelvic floor and will distribute more evenly the intraabdominal pressure on the pelvic structures, lessening the likelihood to bladder and rectal symptoms and herniation. All raw surfaces, if any, are covered with the use of soft suture.

If it is necessary to remove the tubes, this is done by placing a clamp high up on the broad ligament against the tube, then removing and sewing over the forcep with running soft suture, drawing out forcep and tying the ends.

One aim should be kept especially in mind, not to impair the function of the uterus if possible but remove the pathologic lesion, which will remove the future danger of trouble and symptoms; nor should we destroy or remove unnecessary organs.

A point on which special stress should be laid is that radium, as well as the x-ray, does not take the place of surgery, except in an exceedingly limited number of cases. Therefore, my opinion is that roentgen and radium should be only considered in conditions where there are complicated serious heart, renal or pulmonary lesions, and cases of extreme weakness, when our patients can not stand the physical shock of an operation, leaving the rest for surgery.

The question has been brought to me several times, and also occasionally you will see mention of it in literature, should the upper belly be explored and operated on at the same time we do a hysterectomy. This I feel depends upon three conditions:

First, the condition of our patient. If there is any question as to the physical endurance, most certainly not.

Second, the operator. There are many men who could remove the gall-bladder and do a hysterectomy on the same patient with less shock, taking no more or even less time than another could do either. Therefore, the slow, cumbersome and occasional operator should never attempt such multiple procedures.

Third. If dealing with infection in pelvis, such should not be considered.

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BACTERIOLOGY OF INFLUENZA

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At the beginning of the influenza epidemic in Nitro an attempt was made to study the bacteriology of this disease. Seventeen cases from swabbings of the throat, twenty cases from swabbings of the nasal mucosa, and seventy-eight cases from washed bronchial secretions were studied. The work, however, was mostly confined to bronchial secretions. Twenty blood cultures were made. A careful study was also made from organs and body fluids of eleven postmortems and fourteen chest punctures from patients dead from influenza.

METHODS

Fresh specimens of sputum carefully collected were washed several times in sterile saline solution to remove the saprophytic mouth organisms, and then a small kernel of sputum, or an emulsion of same, plated on blood agar. The resulting plates showed quite a heavy growth of various types of organisms. With such extensive and heavy growth of saprophytes and semiparasitic organisms, unless extensive plating is made, these organisms overgrow and more or less obliterate the more delicate ones. Even washings in several dishes do not seem to decrease these organisms materially. But if several plates are used for each specimen, isolated colonies can be obtained far more often.

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*From the Base Hospital, Government Explosives Plant "C" Nitro, W. Va.

The Bile Method of Cultivation. It has been a well known fact for some time that bile or sodium taurocholate has a lytic effect on true pneumococci. Recently Echer** has suggested the use of bile in the isolation of certain organisms from the sputum, since many of the normally present pneumococci would be destroyed and less growth occur on the plates. Not having bile or sodium taurocholate at hand, a lactose peptone bile solution was substituted. Nothing was known about its lytic or inhibitory properties, but it was worth while to try it out. Small kernels of sputum were allowed to stand in the bile solution for one-half hour (in later experiments three-quarters of an hour). They were well shaken about every ten minutes, and at the end of the allotted time period were plated. While there were many gram positive diplococci present, nevertheless these plates showed a marked decrease in the growth of colonies. The bile present in the lactose bile solution had apparently no deleterious effect on delicate organisms present, which was shown in the fact that it was from plates made by this method that the delicate gram negative organisms which were isolated were obtained.

This method, while not eliminating all of the difficulties encountered, seems to aid considerably by helping to clear the plates of excess growth. This was well demonstrated in duplicate plates on many of the specimens, using both the plain washing and lactose bile method. There were, however, gram positive diplococci present almost always, but these may not have been true pneumococci, as the organisms were very large and somewhat elongated, instead of lancet shaped.

The Use of Gentian Violet in Isolating B. Influenzae. We then attempted the method of using gentian violet. It has been found that gentian violet, even in small amounts, is inhibitory to gram positive organisms, but has no inhibitory effect on those organisms which are decolorized by the gram method. Working on this principle, plates of blood agar were made, containing weak dilutions of gentian violet. The first set of plates was made up in two dilutions of 1:100,000 and 1:10,000. Specimens of sputum were washed and then plated. In twenty-four hours the plates were examined and no growth at all found on those containing the greater concentration of the dye. Those containing the lesser concentration of gentian violet showed quite a substantial growth of organisms, both gram and positive and gram negative, but gave less overgrown plates than plain blood agar. All the colonies, however, seem to absorb the dye and take on a purplish color, which is very confusing when trying to pick suspicious colonies for examination. Another series of plates were made later with dilutions of 1:50,000. After incubation there was no growth at all on the 1:50,000 plates, showing that even this weak concentration of the dye was too strong to allow growth. The 1:100,000 plates were quite satisfactory as regards growth of delicate organisms.

This method of plating seems to eliminate more of the gram positive organisms than either of the other methods. Standing in lactose bile before plating on gentian violet medium seemed to make practically no difference in the growth on these plates.

COMMENT

In studying the organisms found, only morphologic and staining characteristics were taken into consideration, with the exception of the suspected influenza bacilli, few streptococci and some other organisms, where cultural methods were used to establish their identity. Only a few of the pneumococci found were grouped, white mice having been used for this purpose.

The plates incubated for 18 to 24 hours showed heavy growth of various types of organisms, staphylococci and gram positive diplococci predominating. On some of these plates small glistening colonies, which were demonstrated to be made up of small gram negative bacilli, were found. On transplants and blood agar plates they grew fairly well and could be cultivated without difficulty on plain agar. In one case the organisms in question fermented both glucose and lactose, while all the other organisms in this group did not. However, the ability to grow readily on plain laboratory media eliminated these from the influenza group. The small gram negative pleomorphic bacilli, which did not grow on plain agar, and only on blood agar as minute transparent colonies, were taken to be B. Influenza. *** In one case this organism was isolated from the peritoneal cavity of a white mouse ten hours after injection of a washed emulsion of bronchial secretion into the peritoneal cavity.

**E. E. Echer: An Apparently Practical Method for the Isolation of Pfeiffer's Bacillus from Sputum. J. A. M. A. Vol. 71, 1482, Nov., 1918.

***These cultures sent to Hygienic Laboratory, U. S. P. S. were identified as B. Influenzae.

TABLE I

Percentage Incidence of Various Bacteria Isolated from Sputum, Throat Swabs and Nasal Swabs

	Staphylococci	Pneumococci	Streptococci	Bac Influenzae	Various other organisms	Number cases examined
	per cent	per cent	per cent	per cent	per cent	per cent
Washed Bronchial Secretions	87	56	32	7	46	78
Throat Swabs	82	47	35	11	53	17
Nasal Swabs	85	30	20	10	30	20

TABLE II

Various Bacteria Isolated from Punctures of Chest a fter Death.

NUMBER	Staphylococci	Pneumococci	Streptococci	Various other organisms
1	x	-	-	
2	-	-	-	Micrococcus Tetragenous
3	-	-	-	Small slender diptheroid Bacilli
4	x	x	-	
6	-	-	-	Feebly stained coccus
7	x	x	-	
8	x	-	x	
9	x	-	-	
10	x	-	x(hem)	Large gram positive coccus
11	-	x	-	
12	-	-	-	
13	x	x	x	
14	x	-	-	

TABLE III

Number of Instances the Various Bacteria were Isolated from the Organs and Body-fluids of Eleven Post Mortems.

	Staphylococci	Pneumococci	Streptococci	Bac. Influenzae	Other Organisms
Lung	1	6	3	-	Small gram negative Bac. Diptheroid Bacillus
Hearts Blood	-	4	3	-	
Pericardial Fluid	-	2	2	-	
Sphenodial Sinus	-	1	-	2	
Spleen	-	2	1	-	

From Table I it is readily seen that from seventy-eight examinations of bronchial secretions 87 per cent. were staaphylococci, 58 per cent. pneumococci, 32 per cent. streptococci (mostly of the hemolytic type and 7 per cent. of B. Influenzae. Other organisms, including the small gram negative bacilli which grew on plain agar, were found to an extent of 46 per cent. The same table shows that plates from throat swabbings gave 82 per cent. of staphylocci, 47 per cent of pneumococci, 35 per cent. streptococci, 11 per cent of B. Influenzae, and 53 per cent. of various other organisms. A study of twenty cases from the nasal swabs gave about the same results.

In attempting to isolate the organisms from lung punctures after death, there was an uncertainty as to the locus where the needle penetrated and also a certain amount of contamination. In all fourteen punctures were made and staphylococci found in 8; pneumococci in 4; streptococci in 2, and a few various other organisms. (Table II.)

The study of the bacterial flora of the organs and body-fluids, as shown in Table III, revealed that pneumococci and streptococci were isolated from the lungs, heart's blood, pericardial fluid and spleen.

The influenza bacilli were isolated in pure cultures from one sphenoidal sinus, which was filled with a white thick pus. It was also found in association with the pneumococcus in another sphenoidal sinus, which was seen to contain thin seropurulent material.

Blood Cultures. Twenty blood cultures made in the early stages of the disease showed no growth.

CONCLUSIONS

In reviewing the above figures, it is certain that staphylococci, pneumococci, and streptococci are the organisms most prevalent in the bronchial secretions; pneumococci and streptococci in organs and body-fluids. The B. Influenzae were found in 7 per cent. of the bronchial secretions; 11 per cent. of the throat smears; and 10 per cent. of the nasal swabs. The sphenoidal sinues also gave two cultures of B. Influenzae.

SOME OBSERVATIONS ON THE DISCREPANCIES AND STANDARDIZATION OF THE WASSERMANN TEST.

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No laboratory test has been subject to as much criticism and to as many modifications in technic as the Wassermann serum test for syphilis. Many of the modifications have been brought out in attempts to improve the reaction and no doubt have served to increase its delicacy.

In recent years several papers have been published, calling attention to discrepancies in the results of Wassermann reactions performed on the same serum in different laboratories. For example, Uhle and MacKinney submitted specimens of blood and from 292 individuals from four to ten laboratories. They found that there is one chance in five that the tests will agree. Wolbarst, in a study of 37 cases by two or more serologists, found that the results agreed in 70 per cent. and disagreed in 30 per cent., either slightly or absolutely. Phelps, in a series of 359 specimens of blood divided and sent to from two to four laboratories, found that the results agreed in from 52 to 65 per cent.

The Medical Research Committee, of the British National Health Insurance, in their report on the standardization of the Wasermann test, points out that there is no process of biologic diagnosis that gives more trustworthy information or is liable to a smaller margin of error than the Wassermann test, when it is performed with completeness by a well trained serologist. The report also states that the test, as performed at present by different workers in different laboratories, with the great variety of methods employed, the diagnostic value of any given laboratory cannot be estimated, either absolutely or in comparison with the results of other laboratories. Altho it cannot be regarded as necessary for accurate diagnosis that all workers should perform the test with complete uniformity of technic, obvious advantages are to be gained by the standardization of approved methods.

While with the Laboratory Division of the American Expeditionary Forces the writer conducted 5000 Wassermann tests, using the reagents as standardized and sent out to the various laboratories by the Medical Department Central Laboratory. The standard technic that was adapted by the Division of Laboratories was also employed. A monthly supply of antigen and antisheep amboceptor was received for a period of twelve months. The amboceptor supplied was in every instance labeled, giving the approximate titrated values, the dilutions and the exact amounts to be used in the test. This reagent was found to be uniformly satisfactory and in almost every instance a check titration would reveal the approximate titer as indicated on the label. The antigen extract, as standardized and sent out by the Medical Department Central Laboratory, was an alcoholic extract of beef heart, containing cholesterin to one-half saturation and was also labeled with the dilutions and amounts to be used.

The antigens furnished were found to be the source of the greatest variation in the test, as evidenced by the results obtained when antigens from two different months supplies were employed in making a series of a few hundred tests. In one instance an antigen that was supplied for the month of July, 1918, when run in comparison with an antigen furnished for the month of August, 1918, with 415 sera, gave twenty-five positive reactions, as compared with ten positive reactions obtained with the antigen furnished for the month of August, a discrepancy of 60 per cent. between the two antigens, the newer antigen being the least sensitive.

In another instance, in comparing antigens supplied in three different months by the Medical Department Central Laboratory with an antigen prepared and standardized in our own laboratory, that had been in constant use for more than six months, and by repeated titrations showed no deterioration in its antigenic properties, gave from 25 to 75 per cent. more positive reactions than did the three antigens supplied by the Medical Department Laboratory.

The Wassermann test in every case was compared with the history and clinical findings and in only one instance did the Wasser-

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mann show positive in the absence of a history and clinical findings, which upon repeated re-examinations gave negative reactions. In four cases of secondary syphilis in the florid state, two different antigens supplied failed to give a positive reaction in any degree. One antigen had been recently standardized and sent out. Using the more sensitive cholesterinized antigen two cases were observed that gave eight to ten negative reactions in a period of ten to twelve weeks after the appearance of the initial lesion, and almost at the same time secondary symptoms and a positive Wassermann were observed.

In reviewing the literature and the results obtained by different workers, there can be no doubt that the quality of the antigen extract determines that of the results obtained and, until a uniform source and method of preparing this reagent is established, the results of different workers must differ in a certain proportion of cases. It is not so much in frankly negative or strongly positive serum that this happens as in an important class of what may be described as border-zone sera. These are provided by primary, latent and well treated cases of syphilis, in which the reaction to the most delicate methods is not strong.

As before stated, a number of instances have been recorded where specimens of blood have been divided and sent to different laboratories for test. In one laboratory positive results have been obtained with the same serum which gave a negative reaction in another. This has led, in some quarters, to distrust the test.

It has been brought out in recent years that excellent work has been done in the direction of discovering a method of making antigens which will give uniform results and it is not too much to hope that before long the test will be standardized by this means.

USE OF DIONIN IN WOOD ALCOHOL BLINDNESS—A CLINICAL NOTE

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A recent case of methyl alcohol poisoning suggests a method of early treatment of the distressing eye symptoms. The patient, a young professional man, obtained about four ounces of what he considered grain alcohol from a stock bottle in a drug store, pouring it out himself. He consumed almost all of it, mixed with ginger ale, during the afternoon and evening of New Years day. No discomfort was noticed until he awoke next day with vision down to the perception of large objects, polyuria and other characteristic wood alcohol symptoms. He resorted to free saline purges, diuretics, and took much acid in the shape of fruit juices and sour foods.

When examined four days later he presented the usual dilated pupils without reaction for light or accommodation, vision reduced to 2/200, loss of red and green perception, and a large central blind spot in each eye. The retinae were very edematous above, below and toward the macula from the optic disc. There was a deep-seated ache behind both eyes.

A solution of dionin, 5 per cent, was instilled into each eye, with the usual reaction of smarting and swelling of the conjunctiva The aching previously complained of was much less in an hour's time. Free use of sodium bicarbonate by mouth was advised, and he was sent home to use the dionin daily for three days.

On his return vision was 20/20 right, 20/15 left; he reported awakening the morning following the first use of dionin, seeing all objects fairly clearly, but tinged with red; in an hour's time they had turned green, and by afternoon had resumed normal colors. Analysis had disclosed the fact that he had taken denatured alcohol by mistake, comprising 90 per cent. ethyl alcohol, 10 per cent. methyl alcohol, and perhaps half a grain of corrosive sublimate to the ounce. He is continuing use of the dionin three days in each week. It is not unlikely that some post-neuritic atrophy may follow and again reduce his vision somewhat, because the retinal edema is still present, tho much diminished.

This instant local lymphagogue action of dionin is not dangerous, altho the smarting and redness are uncomfortable for a short time. It is hoped that prompt use of this substance in 5 per cent. solution may be made in other cases of wood alcohol poisoning, even if it is not immediately possible for an oculist to examine them. Any measure that affords a decongestive action to these poisoned optic nerves should find early if cautious employment.

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EDITORIAL

FADS AND ILL HEALTH

The fad that may engage our attention is the desire of many women to be thin. Multitudes of them place the wish to be slender and willowy above that for sound health and enjoyment of life. They go about in evening dress or the semidecollete of the streets with their skeletons prominently in evidence. Their figures often verge upon emaciation. Those who, from the masculine point of view, are possessed of a moderate but agreeable plumpness, are derided by their sisters who miss no opportunity to point out the unpleasing signs of overweight. It is the fad to be thin. Every doctor must be more or less aware of it and must realize the difficulty of combatting the widespread practice of undereating which is supposed to be productive of this desired condition. Many ills are directly traceable to it, the principal one being anemia, causing many symptoms of discomfort and disease. Perhaps the worst feature of the practice is the fact that young girls imitate their elders and the fad has extended into their ranks. Just as the debutante slouch, which was in vogue a few years ago, caused relaxed spines and narrow, rounded shoulders, so at present is the desire for thinness affecting many of our girls.

A psychologically curious feature is that the poor creatures who advocate extreme thinness believe that men admire it. As a matter of fact it is a quality which few men admire in women. The present fad is probably a subconscious result of the influence of the imported ballets which stormed the United States four or five years ago and whose devotees combined grace with extreme emaciation. Their followers confuse the admiration which their grace excited with their thinness. Since they cannot have the former, they will have the latter. It seems well that physicians should do what they can to discourage this fad, tho it is quite likely that anything they may say to change the deluded victims will but fan the flame of their desires.

Of course it is recognized that this fad is not universal and that the vast majority of women recognize its dangers and discountenance it at least in private, tho they may openly appear to admire its followers. It is but just to add that men also have their weakness and idiosyncrasies and these observations are not to be construed as invidious sex criticism. But the fad is prevalent and presents one of the problems which from time to time enter into the province of medical practice.

REDUCTION OF DEATH RATE

The reduced general death rate in the United States during the last twenty years has been one of the striking factors in our national life and indicative of the progress of the nation along lines of health and sanitation. During this period the death rate has been reduced from 17.6 to 14.2, which represents an enormous saving of life. If the conditions of twenty years ago had prevailed the past year, the number of deaths for the United States would have been increased by 350,000. It is customary to ascribe this decreased death rate to many causes, such as lessened death rate from diseases of children, reductions of death and increase of life from the modern treatement of tuberculosis, increased knowledge of sanitation, etc.

One often overlooks the part played by the newspapers in disseminating health educational matter which has been a very great factor in attaining these striking results. The medical man is wont to scoff at the syndicated medical articles in the lay press, such as appear, for instance, under the name of that famous disseminator of medical lore, of uncertain personality, "Dr. Hirschberg, of Johns Hopkins University." If one reads these articles with care he will note that they contain a great deal of real information which can be adopted by any reader with profit. Probably the greatest factor in the country in disseminating real scientific information to the general public regarding health and sanitation is the Bureau of Public Health Service. Since government officials have taken in hand the instruction of the public along lines of prophylaxis, sanitation and hygiene, more knowledge in such matters has been spread among the people than ever before in the history of medicine. Physicians commonly overlook the fact that publications issued by this branch of the government service are obtainable for the asking, and are useful in many lines of desired education, both for their own information and for distribution among their patients.

INTELLECTUAL STARVATION AND ITS RELATIONSHIP TO DISEASE

There is thruout the country a lamentable poverty of available reading matter, or at least a lamentable disregard of such as is available. Notwithstanding the multitudes of magazines, journals, newspapers and books that are published, vast numbers of people do not use them. The writer recently had a patient who for years had taught school and who was apparently a very intelligent woman. After marriage her home was made on a farm and the early practice of reading was discontinued. She had never heard of H. G. Wells or of a host of other writers, whose names should be familiar to everyone. In recent years she had read few books, took only the local country paper, rarely saw a magazine and in the main was quite as isolated from the benefits of literature, art and science, as she was thru distance from the theatre, the street car and other concomitants of urban life. The mind of such a person is starving and this starvation was shared by her husband and children and reflected in their views on life, health and sickness.

Such intellectual starvation is widespread not only in the country, but in the city. To it is accountable partly, tho of course not wholly, the vogue of irregular practitioners of all kinds who succeed, not because the public is vicious but because it lacks good instruction, lacks in a measure the means of obtaining good instruction. It is quite true that many persons of supposed intelligence are followers of cults, isms and pathies but the number of such who read widely is small as compared with the mighty host of those who read little. Even that which they read is usually full of misinformation and teaches much that is cheap and sensational. In thousands of homes there is little money left after the costs of living for papers, magazines and books, and, tho these are obtainable thru the libraries, there are many who do not know how to get them or how to use them properly after they are obtained. Many others have no desire to read, even tho reading matter be given them.

Were there some means of increasing the amount and improving the standard of reading, there is small doubt that one of the most beneficent reactions would be improvement in raising the standards of health and maintaining it at a generally higher level.

THE WIDE DISSEMINATION OF SMALL POX

Not for many years has there been such a universal appearance of smallpox over this country as exists at the present time. Nearly every city of the Pacific Northwest reports more cases under treatment that an any previous period. For instance, during the past three months of last year about 900 cases were reported to the Washington State Board of Health by health officers thruout the state. From Oregon and Idaho like statistics are presented. Twenty years or more ago, if 150 cases existed at a given time in one of our cities, a condition approaching panic ensued, while now such a situation is taken more or less as a matter of course. This is due largely to the mild character of most cases, resulting doubtless from inherited immunity, following compulsory vaccination in the persons of our parents and grandparents. There is no question that the dissemination of the disease at the present time is due to the relaxation of vaccination, resulting from the systematic opposition and campaigns on the part of antivaccinationists, Christian scientists and those people who seem naturally antagonistic to any kind of enforced laws and regulations. So weary have some public officals become of this systematic opposition to vaccination, that they have withdrawn serious opposition to these organized efforts. Accordingly, many legislatures have repealed laws of this character which in the past have protected the public against this disease. We are now reaping the harvest thus sowed in recent years.

The question naturally arises whether this is the correct attitude to assume in face of the prevalence of this preventable disease. One may assert he will protect his own family and friends thru the benefit of vaccination, and the cranks who oppose it may enjoy the blessings of the disease among their families and friends to their hearts content. On the other hand, why should these people be permitted to pass on their disgusting disease to people who have a natural opposition to it. Besides, there is a financial and economic loss in the wide-spread presence of this disease, of vital interest to every community, which demands the elimination of useless expenditures and losses. Therefore, the question is pertinent whether the time is not approaching when the cudgels should be once more taken up against the cranks of pervated mentality who have been allowed to have their own way during recent years on the matter of compolsory vaccination. If permitted to pass for the present, it can be safely predicted that the day is not far distant, when our state legislators will be made to excercise sufficient reason and foresight to reenact measures for compulsory vaccination which now have been discarded.

OUR NEW ADVERTISERS

It is our custom from time to time to call the attention of our readers to new advertisements appearing in Northwest Medicine. Since none are received except such as have been thoroughly proved as ethical and trustworthy, we call the attention to these advertisers with confidence in the stability and trustworthiness of the products presented. The following appear in the advertising section of this issue. The goods supplied by Bauer and Black are known to all physicians as reliable surgical dressings which can be utilized for all professional uses. A new surgical dressing is "Cellosilk," produced by the Marshalltown, Iowa, Laboratories, a description of which will be found in the advertising pages. The Abbott Laboratories have long been known for their reliable products. This month they appear in a full page advertisement, describing some synthetic products, for which they have become well known as replacing like products formerly produced exclusively by the Germans. The advertisement of George W. Brady & Company, of Chicago, presents x-ray supplies, essential to the work of the radiographers. The Radium and Oncologic Institute, of Los Angeles, appears in a full page advertisement which describes the institution and the work which it is equipped to accomplish in diseases treated by radium. The Spokane Clinical Laboratory is presented for the first time. This is a dependable institution whose work is well known to the Spokane profession. In connection with the other clinical laboratories appearing in our advertising pages, they offer the profession of Washington the opportunity of getting results from laboratory analyses and examinations. We commend to our readers a perusal of these new advertisements.

INCREASED COST OF REPRINTS

We regret the necessity of presenting to future contributors an increased schedule for the cost of reprints. There has been no advance in these rates since some time before the war but such an increase is now demanded on account of the advanced cost of paper and the cost of printing. Northwest Medicine has no financial interest in these reprints, acting simply as an intermediary between writers of articles and the Metropolitan Press, printers of the journal. The object of this statement is to forestall natural inquiry concerning the higher cost of reprints which may be received from future authors of papers.

MEDICAL NOTES

OREGON

Annual Lectures at the Academy. Dr. A. S. Warthin, Professor of Pathology at the University of Michigan, delivered the annual lectures before the Portland Academy of Medicine, Jan. 8 and 9. Subject of the first lecture was "The Pathology of Latent Syphilis"; the second, "Heridity of Diseases."

The Coos-Curry County Medical Society, at its meeting last month, elected the following officers: President, G. Earl Low, Coquille; Secretary, P. J. Kizer, North Bend.

North Pacific College. At the North Pacific College of Dentistry, at Portland, the following physicians appear on the teaching seaff: Dr. J. A. Pettit is professor of surgery in applied anatomy; Dr. R. S. Stearns, professor of anatomy, with Drs. W. K. Hill and R. L. Sharkey as instructors in the department of practical anatomy. Statistics show that only 39 per cent of the total student body are from Oregon, while 10 per cent come from foreign countries, with 5 per cent from British Columbia. There are 4 per cent from Idaho, 3 per cent from Montana and 2 per cent from California. The remainder representing various other states.

The Annual Meeting of the Western section of the American Laryngological, Rhinological and Otological Society will be held in Los Angeles, Feb. 21. All members of the profession in the Northwest interested in eye, ear, nose and throat work are invited to attend this meeting.

WASHINGTON

Addition to Hospital. A year ago Seattle voted to build an extension to Firland Tuberculosis Sanitarium, at the cost of $60,000. Thus far no action has been taken to carry out this purpose. The

Seattle city council now proposes to build an addition costing about $36,000. While the institution is constructed of brick and concrete, it has been decided to erect a wooden structure that will accommodate about one hundred patients. In addition other improvements will be made to the administration building and isolation hospital.

Extension of Hospital. The Orthopedic Hospital, of Seattle, has outgrown its present accommodations. A movement is on hand to raise $25,000 to add another story to the main building. This institution has accomplished an extensive work for the relief of crippled children who come to it from a wide extent of territory.

To Build New Hospital. Action has been taken to raise funds for building a hospital at Shelton. It is hoped to make it a county institution since no such hospital exists in Mason County. At present it is necessary to transport patients a long distance to cities where hospital advantages are available.

Appointed Regent. Dr. J. B. Eagleson, of Seattle, was last month appointed a member of the Board of Regents of the American College of Surgeons. He visited Chicago to attend a meeting of this Board.

Studying in India. Dr. D. H. Bell, of Tacoma, is now at Amritzar, India, where he is taking postgraduate work with Col. Henry Smith, famous British Surgeon, who has a world-wide reputation for cataract operations.

Elected Mayor. Last month Dr. C. A. Lewis, of Fairfield, was elected mayor of the city. He has been a resident of that city for two years. During the war he served in the army, part of the time in France.

Lewis County Medical Society, at its meeting December 8, elected the following officers for the ensuing year: President, J. M. Sleicher, Chehalis; Vice-president, F. J. Hackney, Centralia; Secretary, Rush Banks, Centralia.

Whatcom County Medical Society, at its meeting last month, elected the following officers: President, H. J. Compton, Bellingham; First Vice-president, A. M. Dawson, Bellingham; Second Vice-president, C. S. Hood, Ferndale; Third vice-president, C. C. Hills, Custer; Secretary E. L. Brinson, Bellingham; Treasurer, W. D. Van Kirk, Bellingham; O. E. Beebe was appointed Delegate to the State Medical Society and C. O. Reed, Alternate.

County Physician. Dr. Richard Connell, of Yakima, has been appointed County Physician, who formerly held that office. He will succeed Dr. H. H. Storgaard who has resigned to resume private practice.

New Health Officer. Dr. Frank Davis, of Kelso, has been appointed Health Officer to succeed Dr. J. Ballard.

Acting Health Officer. Dr. A. A. Foote, of Elma, has been appointed as Health Officer during the absence of Dr. French, the regular appointee.

Dr. C. Benson Wood, who practiced in Seattle a number of years, has recently been discharged from medical service in the U. S. Army. He has located for practice at Los Angeles, where he will be associated with Dr. C. C. Browning.

Dr. J. R. Shuman, formerly of Sunnyside, has located for practice in Los Angeles.

Dr. C. C. Benedict, of Enumclaw, has been appointed local surgeon for the Milwaukee Railroad.

Dr. Frederick Falk, of Seattle, has recently been discharged from the United States Army, after about two years service in various parts of France and Germany. He has returned home for practice.

Dr. W. F. Cunningham, of Seattle, has returned home for practice after serving two years in U. S. Army, the last eight months being on duty in France.

IDAHO

Smallpox Epidemic. Smallpox is Said to be Epidemic in this state. An appeal has been made to clubs of State Federation and Red Cross organizations, to combat the disease. It is reported there were five hundred cases during October and November. It is said that epidemic measures may be taken by the state and vaccination be required in so fas as the city laws may permit it.

OBITUARY

Dr. Alfred Raymond, of Seattle, Wash., died Dec. 3, 1919, at the Mayo Clinic, Rochester, Minn., following an operation for diverticula of the bladder. He was born in 1860 at Cornwall, Ontario. His boyhood was spent on his father's farm. His collegiate and medical course were obtained at McGill University, Montreal, where he received his medical degree in 1887. He located for practice at Marcus, Ia., where he remained until 1889, when he spent two years in study in London and Vienna. In 1890 he located for practice at Omaha. He moved to Seattle in 1891. He was one of the best known physicians in that city and was highly respected by the medical profession and the general public for his qualities, both as a physician and a public-spirited citizen. He was a man of fine physique and of marked force of character and personality. He made a special study of brain surgery and was known as a skillful operator in this branch of work. He was devoted to art and was known as a judge of proficiency in this line. He was much interested in archeology, being one of the chief supporters of a society in Seattle devoted to this branch of research.

RESOLUTION OF KING COUNTY MEDICAL SOCIETY

Whereas, The great physician of the universe has called from his earthly labors, our honored colleague and friend, Dr. Alfred Raymond, and

Whereas, Dr. Raymond for many years has not only been a member of the King County Medical Society, having been its president, but as a physician and surgeon has for a generation been the trusted adviser, medical counselor and friend to many of the citizens from city, county and state, and

Whereas, This society feels that in his death we have not only lost an honored member, but also one who was a personal friend to most of our membership, and that this community has lost one whose place and work cannot be easily filled, therefore be it unanimously

Resolved, That King County Medical Society hereby expresses to his bereaved widow and daughter our sincere sympathy, and be it further

Resolved, That copies of these resolutions under the seal of the society be forwarded his family, furnished Northwest Medicine for publication and spread upon the record of the society.

Signed: E. Weldon Young,
Richard W. Perry,
George M. Horton,
Committee.

Dec. 15, 1919.

REPORTS OF MEDICAL SOCIETIES

KING COUNTY MEDICAL SOCIETY.

Pres. D.H. Nicholson, M.D.; Secy.L.H. Maxson, M.D.

The regular meeting of the King County Medical Society was held in the Arcade Bldg., Seattle, Wash., Dec. 1, 1919, being called to order at 8:15. The minutes of the previous meeting were read and approved.

Papers.

Stomach Trouble. By Dr. J. M. Blackford. In covering the analysis of 520 cases he brought out the fact that most cases of so-called stomach trouble have no organic lesion. In all laporatomies where stomach disturbances are a symptom, a careful abdominal exploratory should be made. Gastric ulcer is always surgical. In gastric carcinoma he pointed out the early lack of symptoms and the remarkable accuracy of x-ray diagnosis. The frequency of thoracic disease causing gastric symptoms was discussed. The highest acidities are not found in gastric ulcer but in functional cases. Functional digestion disturbances and systematic intoxication were mentioned.

In discussion Dr. Winslow stated that gastric symptoms are practically always secondary and often due to systemic conditions. The history and complete physical examination are more important than the laboratory findings.

Dr. Geo. Dowling made a plea for careful records of all clinical cases. The complete diagnosis is essential and there should be no failure to use the facilities at hand to make this complete. Most cases operated upon are not properly treated after operation.

Dr. Maurice Dwyer stated that 98 per cent. of gastric carcinoma cases can be diagnosed by x-ray. We should not pass up ulcer cases with history when the ulcer cannot be seen on x-ray.

Fractures. By Dr. Casper W. Sharples. He prefers iron wire to other foreign bodies because the chemical changes taking place do not affect the tissues or bone and the tensile strength is much greater than silver or bronze-aluminum wire. Lane bone plate was discussed. Non-operative interference is indicated in cases where a good functional result can be secured. Pictures of two cases were exhibited on the screen and the histories, treatment and results discussed.

In discussion Dr. H. T. Buckner stated he prefers late to early operation in fractures. Fractures should be treated conservatively and given a chance for union to take place.

Dr. E. O. Jones did not believe nails or other foreign bodies essential for internal fixation in intracapsular fractures. He believes closed method in fracture cases the best.

Dr. Don Palmer did not think any one set method applicable in all cases. The method and materials should fit the individual case.

Dr. J. T. Mason feels best results are obtained in intracapsular fractures where small portion of shaft is attached to neck of bone.

Dr. E. C. Lee covered Albee's method of autogenous bone transplants and pins and believes these preferable to nails.

The following applications were read. C. R. Castlen, R. L. Sweet, W. G. Cassels.

The following transfers were read: W. J. Jones, Harry Blackford.

The second regular meeting of the society was held on December 15; meeting called to order at 8:25 P. M. The minutes of the previous meeting were read and approved.

Papers.

Encephalitis Lethargica. By Dr. D. A. Nicholson. He referred to encephalitis of an epidemic type rather than a lethargic form. As to etiology there is little known. Sleeplessness in the first few days, followed by a period when the patient has difficulty in keeping awake. Temperature as a rule about 100 degrees. Double vision is frequently seen and blurring of vision is often complained of. Nystagmus has been seen in some cases. Sleep reflexes abolished. Slight tremor nearly always present. Paralysis is infrequent. Sensory reflexes may be present or absent. Hiccoughs have been a prominent symptom. Respiratory symptoms vary from infected pharynx to marked bronchitis. Spinal fluid is clear under pressure and cell count is often increased. Differential diagnosis discussed. He described degeneration and stated this degeneration may prove to be the microscopic pathology of epidemic encephalitis.

In discussion Dr. Von Phul mentioned polyuria. Relapses occur with a recurrence of symptoms. Believes the pathology is not limited to one portion of the brain, as shown by the great variance in symptoms.

Dr. Geo. Dowling believes there is a possibility that encephalitis so prevalent may be the nervous type of influenza which was pandemic last year. He pointed out the slowness of recovery. The delirium resembles the active delirium in alcoholics.

Dr. P. W. Willis asked regarding the contagiousness of the condition.

Dr. Swift discoursed on the eye symptoms. Congestion is always present but edema of the disc is rare.

Dr. Seagrave asked if the condition is found in infants.

Dr. Frank Maxson asked the relation between the epidemic of hiccoughs and that of encephalitis.

Dr. H. M. Read outlined the necessity of isolation and covered recent research for the causative factors. He reports 90 cases recognized and reported in Seattle.

Dr. Nicholson stated nothing definite could be stated regarding the contagiousness of the condition. Considers it purely a complication of some systematic condition.

Nominations of officers for the ensuing year followed.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

Plastic Surgery, Its Principles and Practice. By John Stage Davis, Ph.B., M. D., F. A. C. S. Instructor in Clinical Surgery, Johns Hopkins University, etc. 770 pp. 864 illustrations, with 1637 figures. Price, $10. P. Blakiston's Son and Co., Philadelphia, 1919.

This is a new work on a subject on which no complete text book has hitherto been written. The war has emphasized the importance of the subject of plastic surgery, tho of necessity only wounds of the face were properly considered to belong to this sphere. However, we know that plastic surgery of the trunk and extremities is equally important, but as elsewhere the plastic surgeon should be properly trained in principles and methods. Dr. Davis believes that every large hospital should have on its staff such a surgeon and that instruction to medical students and post graduates should be a part of his work. The book is admirable in every way. It deals thoroly with such subjects as transplantation of skin, transplantation of other tissues, treatment of wounds, ulcers, varicose veins, scars, keloids, malformations, harelip, cleft palate, and exstrophy of bladder, giving a chapter to each. To each chapter also has been added a valuable bibliography—a selection from the many publications consulted. The illustrations number 864 with twice that number of figures. They are appropriate and good and many of them are from the author's own collections. This work fills a distinct want in the field of surgery and we bespeak for it a great popularity. FORBES.

Diseases of Infants and Children. By Henry Dwight Chapin, A. M., M. D., Professor of Diseases of Children, New York Post Graduate Medical School and Hospital, etc., and Godfrey Roger Pisek, M. D., Sc. D., Professor of Diseases of Children and Attending Physician to New York Post Graduate Medical School and Hospital. Fourth Revised Edition. 592 pp. With 182 cuts and 13 colored plates. Price, $4. William Wood and Co., New York, 1919.

Since the last edition of this work was reviewed in 1915, numerous advances have been made in pediatric thought, requiring much recasting of the material. Entire new chapters have been written on such subjects as encephaliiis, functional heart disorders, food allergy, acidosis and spasmophilia. Functional disorder of the heart is common in the growing child of the neurotic type, including murmurs, sinus arrythmia and extra-systole. The war has taught us to look with far less concern on the systolic murmur unaccompanied by evidences of organic involvement. A better appreciation by the man in general of these functional disturbances of the heart in childhood will spare many homes of many needless hours of anxiety.

In the section on weight and development is a table, "Correct Height and Weight," prepared by Dr. Thomas D. Wood. This brings to mind not a few instances of interviews with anxious mothers who have consulted this particular table, which has had a great deal of publicity in many of the best of our home magazines. An important thing to remember in the individual child, no matter with what scales the comparative height and weight is made, is that there are individual hereditary characteristics of stature development in the particular child which may vary from the normal, as expressed in a table, and always will. The thing of real concern is the child's nutrition. Dr. Chapin, as one of the leading pediatric teachers of America, with a rare fund of clinical material at his disposal, needs no introduction. It is all available in a form easily handled, in good type as a reference book for the busy man in general practice, or the busy man in pediatrics. MANNING.

Nervous and Mental Diseases. By Archibald Church, M.D., Professor of Nervous and Mental Diseases in Northwestern University Medical School, Chicago; and Frederick Peterson, M.D., formerly Professor of Psychiatry, Columbia University. Ninth edition, revised. Octavo volume of 949 pages, with 350 illustrations. Philadelphia and London: W. B. Saunders Company, 1919. Cloth, $7.00 net.

In this volume the subjects of paresis and traumatic insanity have been rewritten, while the other changes are of a minor sort. The authors had the purpose of making a reliable text book and in this they have succeeded. The directness of statement with a preference for Anglo-Saxon words helps the reader. The book is in two distinct parts, and thus the work of the authors is divided. Dr. Church has nervous, and Dr. Peterson mental diseases. The beginning chapter shows how conclusions are got in localization and diagnosis. The other chapters of that part give the results of such work, and are well aided by various diagrams and other illustrations.

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In the classification of mental diseases several of the more recent forms are printed but it is a matter of regret that Dr. Peterson has not put with these the one adopted by the American Medico-Psychological Association, as this has been recommended for adoption thruout the United States, and has been accepted for use in the War Department. Under etiology there is a particularly good presentation of the stigmata and anomolies that frequently go with insanity. The clear print and finished paper make this a good book for the one who reads at length.

GULICK.

Diseases of the Nervous System. A Text-Book of Neurology and Psychiatry. By Smith Ely Jelliffe, M.D., Ph.D. Formely Professor of Psychiatry, Fordham University, etc., and William A. White, M.D. Professor of Nervous and Mental Diseases, Georgetown University, etc. Cloth. 1018 pp.. Illustrated, Price, $8. Lea and Febiger, Philadelphia and New York, 1919.

Since the publication five years ago of the first edition of this work it has been an acknowledged authority, the hospital connection and personal standing of the two authors bringing special recognition. It holds in mind the individual as a biologic unit, subject to controlling influences that come thru the nervous system, and are manifested by mechanisms of three different characters, operating at what is spoken of as three different levels. The first of these divisions deals with the neurology of metabolism, under which is included the internal secretions. This, the borderland between medicine and nervous diseases, is more and more coming to be understood as holding material in essential association with neurological studies, as indicated by the chapter on the endocrinopathies.

The second division takes up sensorimotor neurology, which in this edition has been revised in accordance with the findings gotten from the war. The third part, or level, turns to the psychic systems, studying mental diseases thru the interpretation of the mechanism of their development, rather than as syndrome entities held together by an artificial classification.

The beginning chapter gives a hundred pages to methods of examination. These directions are of working value, and a reading of the same suggests that in nervous diseases a careful examination may have to take considerable time. The chapter on neurosyphilis is particularly worth attention, as the conception covering the group of diseases related under that title, helps to make reasonable their kinship, and also to explain the variations.

GULICK.

A Textbook of Physiology for Nurses. By William Gay Christian, M. D., Professor of Anatomy, Medical College of Virginia, and Charles C. Haskell, M. A., M. D., Professor of Physiology and Pharmacology, Medical College of Virginia. 168 pp. Illustrated. C. V. Mosby Co., St. Louis, 1918.

This book is written for nurses, presupposing an elemental knowledge of anatomy, physics and chemistry. It covers the physiology of the circulation, respiration, and the physiology and chemistry of digestion, including the functional activities of the liver and kidneys. It further includes the physiology of the ductless glands, the nervous system and the special senses. Sleep and reproduction are also briefly discussed. There is an appendix which contains an outline of certain phenomena for those who have not received proper introduction to these subjects. As an elementary book it contains in a simple condensed manner the fundamental facts of physiology of the human body as we know them, in a manner calculated to give a good understanding of the general functional activity of the body for those who go no further in the subject. It is calculated to stimulate further reading in more comprehensive works on the subject.

MANNING.

A Text-Book Upon the Pathogenic Bacteria and Protozoa. For Students of Medicine and Physicians. By Joseph McFarland, M. D., Professor of Pathology and Bacteriology in the University of Pennsylvania. Ninth edition, thoroughly revised. Octavo of 858 pages with 330 illustrations, a num- of them in colors. Philadelphia and London, W. B. Saunders Company, 1919. Cloth, $4.75 net.

This work is strictly up to date. The author's illustrations alone are very valuable to busy laboratory workers and especially so to students and practitioners. The subject matter of bacteria is comprehensive, compact and complete without being prolonged. The subject of malaria with illustrations is covered the best the reviewer has ever seen and his description of protozoa is above criticism.

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ORIGINAL CONTRIBUTIONS

CLINICAL MANIFESTATIONS IN GALL-BLADDER DISEASE. A STUDY OF 1000 OPERATIVELY DEMONSTRATED CASES*

Frank Smithies, M.D., F. A. C. P.

CHICAGO, ILL.

Eight years ago MacCarty demonstrated, pathologically, that gall-bladder disease is a form of inflammatory tissue reaction similar in every way to such tissue reaction in other hollow, abdominal viscera. Six years later, Rosenow showed the frequent bacterial etiology of such inflammation. He appeared to prove that bacteria are commonly first carried to the gall-bladder by way of the blood stream and that, when such are found in the contents of the gall-bladder, they have been cast off from the wall of the viscus as inflammatory by-products. Recently, from the surgical viewpoint, Fowler has emphasized the progressive, inflammatory features of gall-bladder ailments, and, with a similar conception, Cheney has studied 56 cases.

My report attempts to set forth certain useful facts that have become evident from an analysis of 1000 consecutive, operatively demonstrated instances of gall-bladder disease. The records and pathologic reports are those of hospital patients. They have been accumulated during the past five and one-half years.

GENERAL CONSIDERATION.

1. *Sex.* There were 672 female and 328 male patients, i. e., rather more than twice as many females as males (ratio 2.05:1).

2. *Age.* The average age for the series was 43.2 years. The average age was for females 41.9 years, and, for males, 44.5 years. It would thus appear that gall-bladder disease is evidenced rather later in life in males than in females.

The minimum age was in females 13 years and in males 15 years. In both these instances cholecystitis was complicated by cholelithiasis.

The maximum age was 76 years for each sex. In the female patient there was a thick, gray fibrous, gall-bladder, containing 26 large, brown, facetted stones, one of which lay in the cystic duct; in the male there was found a very tense, enlarged and adherent gall-bladder, stone-free.

Table 1 emphasizes that in females rather more than 70 per cent of instances of gall-bladder disease occurred between 30 and 60 years; while in males nearly 75 per cent of cases fell in a like period. Practically the same number of cases were demonstrated in each sex between 20 and 60 years (88 per cent).

3. *"Hereditary" Disease* From 90 patients (9 per cent), there was obtained reliable information respecting the appearance of malignant disease in blood-relatives. It is interesting to note that there was a hereditary history of cancer in but one of the neoplastic gall-bladders of the series. A family history of gall-stones was obtained from 10 patients (1 per cent).

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*From the Division of Gastrointestinal Diseases of Augustana Hospital.
Read before the Twenty-Fifth Annual Meeting of Utah State Medical Association, Salt Lake City, Utah, Sept. 9-10, 1919.

TABLE 1.

SEX AND GALL-BLADDER DISEASE.

Females	672 cases
Males	328 cases

Ratio Females to males as 2.05:1.

AGE IN RELATION TO GALL BLADDER DISEASE.

FEMALES.	Cases	Per cent
Under 20 Years	12	1.8
20 to 30 years	118	17.6
30 to 40 years	169	25.2
40 to 50 years	183	27.2
50 to 60 years	121	18.0
30 to 60 years		70.4
60 to 70 years	60	8.9
Over 70 years	9	1.3

Minimum age 13 years
Maximum age 76 years

MALES.	Cases	Per cent
Under 20 years	2	.6
20 to 30 years	41	12.5
30 to 40 years	75	22.9
40 to 50 years	85	25.9
50 to 60 years	85	25.9
30 to 60 years		74.7
60 to 70 years	34	10.3
Over 70 years	6	1.8

Minimum age 15 years.
Maximum age 76 years,
Between 30 and 60 years, 75 per cent.

Average Female age	41.85 years.
Average Male age	44.52 years.

4. *Operative Procedures Previous to Coming Under Observation.* From 84 patients (8.4 percent) the appendices had been removed; in 23 cases (2.3 per cent) cholecystostomy had been performed, while 7 patients had been cholecystectoomized (0.7 per cent). Upon 48 patients (4.8 per cent) pelvic operations had been done, either for the correction of real malformations or to relieve "reflex" dyspepsias. Five patients had been gastroenterostomized in the attempt to cure existing or suspected peptic ulcers. In none of these cases had the gall-tract been surgically treated.

5. *Previous Infectious Diseases.* Only information of relative accuracy can be presented. In numerous histories all illnesses occurring from birth to young adult life are summed up by the vague term "children's diseases." Such phrase never should be permitted in any history unless definitely qualified. Recent bacteriologic and pathologic advances have taught that many ailments common to the early years of life are responsible for serious local or systemic damage in later years. This is particularly true of the acute exanthemata and of inflammation of lymphoid tissue.

Table 2 presents significant information with respect to infectious ailments and gall-bladder disease. It is apparent that, while typhoid fever is the most common febrile or infectious disorder associated with gall-bladder affections, yet, well toward the top of the list, are many so-called "children's diseases." Particularly prominent are those ailments which present characteristics of bacteremias or of low grade, persistent or recurrent infections of lymphatic tissue. In many of these ailments streptococci, diphtheroid bacilli and micrococci are fairly constant findings. Their importance with relation to concomitant or future gall-bladder disease is emphasized, when it is recalled that the experimental investigations of Rosenow have seemingly demonstrated a peculiar affinity of organisms of the coccus group for the walls of the alimentary tract, particularly that of the gall-bladder. Those bacteria are quite commonly found in the gall-bladder mucosa, in bile and in the interior of gall-stones. In fact, they would appear to occur more frequently than do organisms of any other type, not excluding *b. typhosus* or *b. coli.* It is, therefore, evident, how important, etiologically, the history of such ailments as measles, scarlet fever, tonsillitis, "rheumatism," whooping cough, la-grippe, mumps, diphtheria, etc. may become with respect to digestive anomalies, whether the upset occurs at the time of the acute, infectious ailment or at some future date. The demonstration at physical examination of infected gums, head sinuses, maxillae, joints, tonsils and superficial lymph-gland chains further emphasizes a probable causative agent in the production of alimentary tract disturbances. There were 112 patients (11.2 per cent) in the series, in whom acute infectious ailments seemed to be directly responsible for the initial evidences of gall-bladder disease or for exciting to activity processes previously quiescent.

TABLE 2.

SHOWING THE RELATIONSHIP OF BACTEREMIAS, SEPTICEMIAS, OR CHRONIC LYMPHATIC INFECTIONS TO GALL-BLADDER DISEASE.

	Cases	Per cent
Typhoid fever	206	20.6
Measles	180	18.0
Chronic tonsillitis	146	14.6
Scarlet fever	145	14.5
Pneumonia	115	11.5
Infected teeth	93	9.3
Chronic rheumatism	92	9.2
Malaria	87	8.7
Whooping cough	75	7.5
La Grippe	66	6.6
Mumps	62	6.2
Diphtheria	47	4.7
Chicken pox	47	4.7
Chronic sore throat	46	4.6
Chronic bronchitis	20	2.0

In some way *pregnancy or childbirth* appears to affect gall-bladder function. A definite relationship was manifested by 65 of our cases (6.5 per cent.) In such physiologic state demand for increased activity from the liver, gall-bladder and the alimentary tract may be sufficient to disturb

TABLE 3.
SUMMARY OF FINDINGS AT LAPAROTOMY.

	Cases	Per cent
Cholecystitis with stones in	509	50.9
Cholecystitis with "sandy bile" in ..	46	4.6
Carcinoma (with stones 14) in.....	19	1.9
Carcinoma (without stones 5)		
Cholecystitis without stones in.....	434	43.4
ASSOCIATED LESIONS.		
Appendix disease	682	68.2
Gastric ulcer	43	4.3
Duodenal ulcer	37	3.7
Gastric cancer	14	1.4
Pancreatitis (Acute 2)	65	6.5
Pancreatitis (Chronic 63) Enlarged lymph gland		
Non malignant	124	12.4
Malignant	13	1.3
Total	137	13.7
Liver enlarged	73	7.3

even the normal biliary mechanism. If demand for excessive function be made *upon a gall-tract* already the seat of disease (*as a low-grade infection*) it would appear reasonable to expect bacterial proliferation and inflammatory change, permissible as a consequence of lessened local tissue defense.

LAPAROTOMY FINDINGS

1. Of the series of 1000 cases, non-malignant cholecystitis associated with calculi was demonstrated in 509 patients (50.9 per cent). In 46 patients (4.6 per cent,) the inflamed gall-bladder contained altered bile mixed with sand-like substance. Nineteen patients (1.9 per cent, were affected with malignant disease of the gall-bladder, and in 14 patients of this group (73.8 per cent, gall-stones were present. In the remaining 5 cases it was not possible to prove the previous presence of stones, altho in two cases the early histories suggested them.

There were 434 cases of cholecystitis (43.4 per cent) in which neither gall-stones, "sand" nor malignancy were demonstrable. These gall-bladders all exhibited definite evidences of disease and, as will be pointed out below, the clinical manifestations had been by no means mild or transient.

Mortality. Including all types of ailment, there was an *operative mortality* of 5.9 per cent.

2. *Associated Lesions.* The concomittant incidence of appendix and gall-bladder disease has been frequently commented upon. MacCarty found definite gross and microscopic appendix lesions in 69 per cent of 59 patients operated upon for gall-bladder affections. In my series, 84 patients (8.4 per cent,) had had their appendices removed before coming under observation for the gall-bladder ailment. At the laparotomy for the latter, in 682 cases (68.2 per cent,) there was sufficient pathology to warrant appendicectomy. Combining the two observations, it would seem that of 1000 instances of gall-bladder disease, in 766 patients or rather more than three out of four, the appendix was also abnormal. In many patients the histories indicated appendiceal disturbance before gall-bladder function was so sufficiently impaired as to give rise to definite symptoms.

Table 3 also details valuable information with regard to other lesions associated with gall-bladder pathology. Evidences of the actively progressive infective nature of gall-bladder disease are abundantly demonstrated by the observation of enlarged, lymphatic glands in 124 cases (12.4 per cent;) chronic pancreatitis with enlargement in 63 cases (6.3 per cent,) acute pancreatitis with hemorrhage and fat necrosis in two cases, and enlarged liver in 73 cases (7.3 per cent). The presence of peptic ulcer (gastric and duodenal) in 80 patients (8.0 per cent) may be more than a pathologic coincidence. It certainly indicates limitations in the diagnosis and prognosis of both ailments.

3. *Pathologic Changes in the Gall-Bladder.* A working knowledge of the nature and character of the pathologic changes occurring in the gall-bladder would appear to be essential for a proper appreciation of the clinical manifestations for which these pathologic alterations may be responsible. It is an unfortunate fact that, to both the lay and the professional mind, gall-bladder pathology means largely late stage affections as gall-stones, obstruction, perforation, thickening or fibrous adhesions. The average text-book considers cholecystitis in a vague, uncertain way, as though it were *not an ailment second in frequency of all intraabdominal disease only to lesions of the appendix.* Commonly cholelithiasis meets recognition as an acute dramatic, abdominal crisis, in which the chief roles are played by colic, chill, fever, sweat and jaundice.

The basis of all gall bladder pathology is largely the reaction of four layers of tissue to infection. The infection is most commonly blood-borne. It is quite likely that bacteria first produce changes in the mucosa and sub-mucosa. Such changes consist in congestion and infiltration of the villi with lymphocytes (*"catarrhal cholecystitis."*) In situ the gall-bladder, grossly, to sight or touch presents no marked variation from the normal. The palpating hand of the surgeon detects no abnormality. Unless there has occurred excessive mucous excretion and the bile is so thickened that it is forced thru the gall-ducts with difficulty, such gall-bladders are commonly pronounced "normal" and remain untouched. Yet this type of gall-bladder is seemingly the foundation type for the majority of gall-bladder ailments. It is also the actively infected type. Indeed, it most frequently furnishes the purulent, necrotic, gangrenous and perforative complications. The whole gall-bladder need not be involved. The fundus is quite commonly affected early and remains infected longest. The contents of the gall-bladder are usually thick bile, mixed with mucus. Stones or "sand" may form within a few weeks. They have as their nuclei agglutinated bacteria, precipitated mucus or cellular *debris*. There is usually an excessive secretion of cholesterin.

In our series there were 228 cases (22.8 per cent) of acute catarrhal cholecystitis. Stones complicated in 51 per cent, "sand" in 8 per cent. Many of these gall-bladders would undoubtedly have remained untouched, had not the history of frequent infections and of dyspeptic upsets, the appearance of the bile obtained upon gall-bladder puncture, the presence of stones or "sand," the vascularity of the gall-bladder wall, or the finding of enlarged lymphnodes along the bile ducts, directed special attention to the gall-bladder. Tissue cultures show that from such type of gall-bladder positive growths are most commonly obtained. Bile, mucus and stone cultures also yield the highest percentage of positive growths. The organisms most commonly found are non-hemolytic streptococci, colon bacilli, staphylococci and fusiform bacilli. *Tissue culture of the gall-bladder wall may be positive* and the contents of the gall-bladder practically negative. There may be several organisms cultured from both wall and bile. *The enlarged lymphglands* along the bile ducts may return organisms similar to those of the gall-bladder wall and of the bile. The streptococcus appears to have a peculiar affinity for the lymphatic chain draining the gall-bladder.

If no acute crisis supervenes or if there is no operative interference, "acute catarrhal cholecystitis" may progress to the chronic form, viz., *"strawberry" gall-bladder*. The mucosa is most greatly affected. It is congested, strawberry red and velvety. The apices of the villi become eroded and lose their epithelium. Consequently, yellow specks dot the reddened mucosa. They represent minute bits of scar tissue, where the epithelium has been destroyed. These yellow specks are frequently wrongly considered to be fine stones or "sand."

The gall-bladder wall may still exhibit gross change. There is commonly, however, some edema and thickening. The thickening may, in some instances, be pronounced. The contents of the gall-bladder may be merely thickened bile or mucus.

In our series chronic catarrhal cholecysitis or "strawberry gall-bladder" was present in 328 cases (32.8 per cent.) Stones or "sand" complicated in 62 per cent.

Should spontaneous regression of the gall-bladder inflammation proceed, or the gall-bladder be left undisturbed, infection may rapidly or gradually (intermittently or fairly constantly) involve the deeper layers of the wall. Edema, lymphocytic infiltration and increased vascularization may occur. Purulent, necrotic or gangrenous changes may appear rapidly, either during the progress of an acute infection, or at the lighting up of a local focus, in a chronically infected bladder wall. The peritoneal layer quickly may be involved and adhesions to neighboring viscera take place. Retrograde changes may likewise occur, locally or generally. In a surprisingly short time dense scar tissue, or even calcareous areas may be seen.

.Our series exhibited 434 cases (43.4 per cent.) of chronic cholecystitis. Stones or "sand" were associated in 91 percent.

Primary malignant diseases of the gall-bladder may be local or general. When the affection is *local,* the origin is apparently due to faulty cellular proliferation of the epithelium covering the hyperplastic villi. The stimulating agent is unknown, but the relation between chronic, low-grade bacterial activity and gall-stone formation toward malignant disease of the gall-bladder would seem to be quite strong.

In *general neoplastic change* the gall-bladder always presents evidence pointing to long continued inflammation, *histologically speaking*. This time duration may be quite short—certainly as short as within a few months. Gall-stones may be formed during the preliminary steps leading up to the appearance of the malignant disease. The fact that calculi were often found in malignant gall-bladders does not of necessity prove that such calculi caused the cancer; they may have been formed as the cancerous change altered the excretory function of the gall-bladder, or prevented its proper motor activity. It is only when there has been a long history of intermittent attacks of a benign, abdominal distress, whose origin can be definitely traced to the gall-tract, and when *this distress* later takes on the character of a *malignant disease,* that we can surmise that the *"irritation,"* so-called, from long existing gall-stones has contributed to the onset of cancer. If in the course of the benign ailment, gall-stone "colics" and signs of biliary tract obstruction are exhibited, the case against calculi as instigators of malignant disease is more strongly established.

There were 19 cases of cancer of the gall-bladder in my series. Gall-stones were coincident in 14 cases (73.6 per cent.) The average duration of symptoms of 13 of the cases was rather more than six months. The remaining patients had been ill from two to ten years. In the case exhibiting symptoms intermittently for ten years, but one medium sized stone was present.

4. *Contents of the Gall Bladder.* (a) *Fluid.* This may vary greatly, from a few cubic centimeters of golden bile to enormous quantities of greatly altered bile. That the gall-bladder has great capacity for distension is shown by one of our cases, in which nearly *four gallons* of black bile were drained from the bladder of a female, aged 22, who had been ill but two weeks. An acute catarrhal cholecystitis with cystic-duct obstruction had followed la grippe. It is characteristic of cystic obstructions to produce the greatest gall-bladder distensions. Where obstruction occurs in the common duct, that duct may be greatly distended, but commonly the gall-bladder is small. Stone or catarrhal obstruction of the hepatic duct may likewise result in small gall-bladder.

The *physical characteristics* of the gall-bladder contents were likewise influenced by the nature of the inflammatory process going on in the mucosa. Persistent inflammation produces desquamation, and later atrophy of the mucosa. Excessive amounts of mucus, bacteria, epithelial elements and cholesterin are thrown off. The normal golden bile becomes turbid, thick, mucoid and often dark. It may be almost black. Pus and blood admixtures occurred in 11 per cent of our cases. If drainage remains fairly free, the altered bile may in part pass. The thickened portion may remain behind as a dark, inspissated, formless paste.

(b) *Stones* may occur at *any stage of an infective process.* They may require but a few weeks for their development. There were 21 cases in our services, where gall-bladder had been drained and then the patients reoperated upon within six months and where at the second operation even large stones were found in the gall-bladder remnant. *It is important that the idea should be dissipated that gall-stones mean years of gall-bladder disease.* There is abundant evidence, experimentally and clinically, demonstrating that but weeks to a few months are sufficient for their formation. The determining factors are mainly continuance of low-grade inflammatory changes in the gall-bladder wall and defective gall-bladder emptying. A young girl in my series had a thoro drainage operation for acute cholecystitis associated with typhoid fever, four weeks previously. Nearly 100 medium sized cholesterin stones were demonstrated. A second operation was necessary within three months; the bladder was again full of stones, some of which were tightly imbedded in honey-comb-like fibrous spaces in the gall-bladder wall.

We have already mentioned that the nuclei of stones are commonly agglutinated, tho usually viable bacteria. These may be imbedded in mucus, small blood clots or cellular debris. Viable bacteria may readily be cultured from crushed gall-stones, where the bile is sterile. Indeed it is seemingly true that 85 per cent of gall-stones contain viable bacteria, whereas bile is actively infected in but 20-30 per cent of instances.

The gall-stones may *vary greatly in size,* from pinhead to as large as a chicken's egg. The conglomerate or "mulberry" stones are apt to be very large.

The *number* of calculi may be astonishingly great. In the instance of a female aged 50, who had bad "bilious attacks" all her life, there were by actual count 2631 stones. Larger numbers have been reported: Ochsner 6780; W. Mayo "between five and six thousand" and Schachner 14,000.

CLINICAL SYMPTOMATOLOGY

General. There were 59 cases of gall-stones in which there were no disturbances that pointed to gall-bladder upset. It is difficult to say that in these cases there had been no departure from normal health. In fact, close analysis, *after the patient had been proved to have gall-stones,* usually disclosed mild digestive upsets which have been classed as "dietetic," or in the presence of ailments of severe nature had been disregarded. It it is also surprising how many of the "symptomless" gall-stone patients give history of acute infectious ailments, jaundice years previously or, upon close questioning, recall forgotten attacks of painful type, that have been passed by as "acute indigestion," "gastralgia," "ptomaine poisoning," and the like.

(1) *Type of Individual.* The opinion appears to be quite general that patients affected with gall-bladder ailments are overnourished or even obese. The diagnostic dictum, particularly with regards females, of "fair, fat, forty, belches gas, gall-stones" has obtained a greater vogue than its alliterative or its pathologic accuracy warrant. Less than 8 per cent of our patients were obese or had consistently gained weight. There was weight loss in 493 cases (49.3 per cent). It ranged from 5 to 73 lbs. The greatest, most persistent weight losses were in the cancer cases. Stone and simple cholecystitis cases either maintained weight or lost it intermittently. There were 507 cases in which there had been neither weight loss nor gain.

(a.) *Belching* was prominent and distressing in 68.9 per cent. It was commonly associated with pyrosis or water brash. *Nausea* was annoying in 376 cases (37.6 per cent.)

(b.) *Appetite* was styled "good" in 363 cases (36.3 per cent,) fair in 353 cases (35.3 per cent) and poor in 273 cases (27.3 per cent).

(c.) *Bowels.* There was no anomaly in 282 patients (28.2 per cent). Constipation of an obstinate sype was complained of by 612 cases (61.2 per cent). There was persistent diarrhea in 5.1 per cent). Diarrhea alternated with constipation in 44 cases (4.4 per cent). It was noted that in the diarrhea cases, at laparotomy, there were generally observed swollen, enlarged pancreas and lymph nodes. Persistent diarrhea was the presenting symptom in 8 of the malignant patients.

2. *Type of Ailment.* In 92 per cent of cases the gall-bladder disease meant to the patient a *dyspepsia,* often of not serious nor inconveniencing nature but punctuated by crises of such severity as to be prostrating or decidedly inconvenient. In the remaining 8 per cent of patients the crisis came without premonition or the ailment was so-called "symptomless."

There were 236 (23.6 per cent,) patients who had persistent dyspepsias; 489 cases (48.9 per cent,) where there was frank intermittency, but the attacks fairly frequent, and 207 cases (20.7 per cent) where the disturbance was only manifested at widely separated intervals.

3. *Relation of Type of Symptoms to Pathologic Changes.* Except in the cancer patients, it is not possible before laparotomy to group cases with respect either to their being simple, uncomplicated cholecystitis or the same associated with gall-stones.

This may seem a striking and somewhat radical statement but it is amply borne out by observations made at operation. While it is true that so-called biliary colics are rather more common in the stone cases than where stones are not present, yet in our series the percentage difference was only 7 per cent. Similar observations apply with regard the presence or absence of evidences of obstructed bile flow.

Jaundice was present in 161 cases (31.6 per cent) where gall-stones were demonstrated. Jaundice was intermittently or constantly present in nearly 25 per cent of the patients, in whom operative interference demonstrated no gall-stones. Of course, it was not possible to state that in the latter group of cases small stones had not previously been present and had passed before surgical interference. The point we wish to make is that it is extremely difficult, even when the history of the case has been well developed, where thoro physical and laboratory examinations have been made, and where the intelligence of the patient is above the average, to correctly prognose before laparotomy, what will be the finding when the gall-bladder is actually visible and palpable. One can usually but make the diagnosis of cholecystitis and, if jaundice is persistent, attacks of severe pain have constantly been associated with jaundice, such attacks have been frequent and the disease has existed for longer than six months, it is safe to hazard the prognostic statement that, in addition to the inflamed gall-bladder, stones may coexist. Persistent jaundice usually means duct obstruction, generally the cystic or the common bile duct. There were but 41 cases in our series, in which there was persistent obstruction of the hepatic duct.

PAIN

This was a characteristic symptom in 95.5 per cent. It was intermittently manifested in 688 cases (68.8 per cent.) There was constant discomfort or actual pain in 211 cases (21.1 per cent.) In the non-gall-stone cases it was extremely difficult to state that just as severe pain was not manifest as in the cases where stones were present. In the non-stone cases the attacks of severe pain were apparently due to small stones that had passed before laparotomy, interference with free passage of bile down the ducts as a consequence of accumulations of bacteria, cell detritus and tough mucus, or a local twisting of the gall-blad-

TABLE 4.

Pain in Gall-Bladder Disease.

	Cases		Per cent
Intermittently present in	688	or	68.8
Constantly present in	211	or	21.1
Constant—later intermittent	26	or	2.6
Intermittent—later constant	18	or	1.8

"No symptoms" in 59 or 5.9 per cent cases.

Incidence of "Colics" in Gall-Bladder Disease.

	Cases		Per cent
"Colics" exhibited in	534	or	53.4
"Colics" absent in	466	or	46.6

Stone Cases (520)
(Including Malignancy)

	Cases		Per cent
"Colics" exhibited in	320	or	61.7
"Colics" absent in	200	or	38.2

Sand Cases (46)

	Cases		Per cent
"Colics" exhibited in	20	or	43.5
"Colics" absent in	26	or	56.5

Non-Stone Cases (434)

	Cases		Per cent
"Colics" exhibited in	237	or	54.5
"Colics" absent in	197	or	45.5

der, anomaly of the neck of the bladder or a twisting, kinking, or adhesive stricture of the cystic duct. Such pain may be severe enough to be classed as "colic." The muscular contraction of a distended gall-bladder, the walls of which are actually the seat of active infection, the infection frequently being productive of a fibromyositis, is not an inconsiderable factor in producing annoying distress. In a few instances large lymph nodes pressing upon the common or the cystic duct have been sufficient to account for severe paroxysmal pain.

In the stone cases, however, one of the chief distinguishing characteristics of the severe pain lies in the observation that the pain commonly ceases almost as abruptly as it develops. There is frequently a subjective sensation on the part of the patient of the pain traveling, and instances are frequent enough where the affected individual will quite accurately outline the course of the common duct as the stone is progressing down the same. There is often a sudden cessation of pain and a rapid clearing up of jaundice, as small stones pass thru the papilla of Vater into the duodenum. The most annoying pains are those associated with impaction of small stones in the ampulla-like neck of the gall-bladder. An accumulation of stones at this point may obstruct the cystic duct and thereby cause clinical evidences of gall-bladder distension but the duct may in the main remain stone-free. Such cases are complicated by jaundice, when there are stones also in the common or hepatic ducts. Cystic duct stones or stones in the ampulla were present in 41.6 per cent of our stone cases. Jaundice was associated with cystic duct stone in 11½ per cent of cases. Such jaundice was due either to projection of the stone from the cystic into the common duct, to secondary catarrhal inflammation in the common duct or to small stones that had passed into the hepatic or the common duct.

Relief of Pain. The severe colics require *opiates.* There seems to be nothing else that so quickly or so satisfactorily relieves the agonizing discomfort. More than 72 per cent of our stone cases and more than 59 percent of the non-stone cases and more than 59 per cent of the non-stone morphine during the acute attacks of distress. In individuals who are chronically sick the danger of an opiate habit becoming established as a consequence of free hypodermatic injections must never be forgotten. In 90 per cent of our cases the pain was relieved by *heat* applied externally or administered internally in the shape of hot drinks or gastric lavage. There was *vomit relief* in rather more than 45 per cent of cases. Many more cases than these vomited but the emesis was not always accompanied by relief of symptoms. In 82 per cent there was relief of abdominal distress by *belching.* In 9 per cent relief from pain was only obtained by *alterations in posture.* Less than 7 per cent of our cases obtained relief of distress by the *ingestion* of food. In young individuals, where there exists a "hyperacidity syndrome," this absence of relief of pain upon food ingestion furnishes an important point in the differential diagnosis between peptic ulcer and gall-bladder disease. How important this is becomes evident when it is recalled that in uncomplicated peptic ulcer food relief of pain is obtained in more than 74 per cent of patients. In gall-bladder disease relief of distress by the taking of *alkali* is constant in about 22 per cent of cases. Patients state that the alkali either facilitates the belching or it counteracts stomach sourness or the sensation of burning.

Characteristics of Pain. (a.) *Time.* The main characteristic is that pain appears irregular in an individual previously apparently well or it occurs constantly without any apparent definite causative factors. This applies both with respect to pain in cholecystitis and in cholecystitis associated with cholelithiasis. There is in striking contrast to the clean-cut, time-relations factors associated with peptic ulcers, where in more than 80 per cent of uncomplicated cases there is direct relationship between cause and effect, that is, the pain occurs quite regularly from two to six hours following food intake; it has a characteristic form of relief, namely, by food ingestion, alkali or vomiting. But rarely is the pain severe enough to require the administration of opiates—in but 12 per cent of 553 operatively demonstrated instances of peptic ulcer which I recently analyzed.

(b.) *Type of pain.* The severe colics are usually described as knife-like, sticking, stabbing, piercing, doubling up or boring pain. The distress is probably more prostrating than is pain in any other form of digestive upset, unless it be that associated with perforation of a gastric or a duodenal ulcer. If the patient is not affected with colics, his distress is usually described as a sensation of fullness, up-pressure (32 per cent) soreness, dull ache, burning and, when the gall-bladder disease is complicated by peptic ulcer (8 per cent in our series,) gnawing.

Location of Pain. This is usually in the right upper quadrant (74 per cent). In numerous instances the distress is thruout the entire epigastrium (14 per cent). Not rarely there is a widely disseminated area of discomfort but a spot of especial distress at the right costal margin. In 4 per cent of our cases all the pain lay in the back, either at or beneath the scapulae or along the spine from the eigth to the twelfth dorsal vertebrae. Not a few patients had been undergoing osteopathic treatments for the readjustment of so-called dislocated vertebrae. Removal of the gall-bladder apparently caused the vertebral articulations to become normal in an extremely short time. There were five cases where all of the pain lay in the right shoulder, and where the patient had been for many years treated for rheumatism and neuritis. In 3 per cent of cases all the pain was to the left of the mid-line, either in the abdomen or beneath the left scapula. There were two patients in whom disease of the right hip joint was suspected because more or less constant distress was present in the joint and down the right leg.

Transmission of Pain. In 32 per cent of the whole number of cases in the series no transmission was recorded. In 23 per cent of the stone cases there was no transmissable distress, while in 41 per cent of the instances of non-calculous cholecystitis there was no radiation of pain. Pain was most commonly transmitted into the right back or infrascapular zone (63 per cent). In 12 per cent the radiation was under the right ribs, in 7 per cent toward the sternum, mid-epigastrium, the left scapular or the left rib edge. In 4 per cent of cases there was definite radiation of pain constantly to the region of the navel.

TABLE 5.

SIGNS OF OBSTRUCTED FLOW IN GALL-BLADDER DISEASE.

	Cases		Per cent
JAUNDICE			
Absent in	741	or	74.1
Present—intermittently in	151	or	15.1
Present—constantly in	35	or	3.5
Present—possibly in	73	or	7.3
STOOLS.			
Bile present and blood absent in	724	or	72.4
"Clay colored" stools in	181	or	18.1
Blood present in	26	or	2.6
(Hemorrhoids in 115 cases)			
No symtoms in	69	or	6.9
URINE.			
Bile absent in	810	or	81.0
Bile (present) in	128	or	12.8
Bile (possibly present) in	62	or	6.2
GALL-STONE CASES (*Excluding Malignancy*)			
Jaundice present in	161	or	31.6
Jaundice absent in	348	or	68.4

Abdominal Tenderness was recorded in 883 cases. There was no abdominal tender area in 117 cases (11.7 per cent). There was dorsal tenderness (commonly along the lower thoracic or upper lumbar spines and usually to the right) in 29 (4 per cent) of 760 cases examined for such. It is often surprising how slightly tender the gall-bladder may be to palpation when compared to the pathologic changes demonstrated at laparotomy.

Epigastric tumor or ridge was present in 89 cases (8.9 per cent). The liver was definitely palpable in 39 cases (3.9 per cent). There was a fluctuating tumor in 7 cases (.7 per cent). These were instances of greatly distended, perforated or abscessed gall-bladder.

Signs of Obstructed Bile Flow. Of the entire series of 1000 cases *jaundice* was a sign in 287 or 28.7 per cent. It was noted in 161 (31.6 per cent of instances of cholecystitis associated with stones and in 101 (25.5 per cent) of the cases of cholecystitis where stones were absent.

The stools were "clay-colored" in 181 (18.1 per cent) cases of the series. They contained sufficient bile pigment to color them sufficiently to cause no microscopic change in 724 cases. In 26 instances (2.6 per cent) the stools were discolored by blood, usually from hemorrhoids. In the 59 instances of gall-bladder disease presenting "no symptoms" there were no stool abnormalities recorded.

Excess of *bile pigment in the urine* was observed or had been previously recorded in 190 cases (19 per cent) of the series. In the remaining

819 cases the urine had seemingly been grossly unaltered.

In association with "colics" and evidences of obstructed bile flow, the classic triad of symptoms, "chill, fever and sweating," were noted respectively but in 44, 54 and 36 instances.

Vomiting proved an annoying symptom in 452 cases (45.2 per cent). Retention vomitaing occurred in nearly 6 per cent. Adhesions about the duodenum or pylorus, enlarged lymph glands, pressure from distended gall-bladder or liver or in association with swollen pancreas were the cause of retention vomiting. When such was of constant occurrence, marked pyloric or gastric spasms not rarely resulted in the intermittent emesis of food that had lain in the stomach longer than twelve hours. In 62 per cent of all patients vomiting of fresh or oxydized bile was noted in the gastric contents.

Test Meals. Complete test meal records were obtained from 407 patients. In 9.2 per cent there was some degree of twelve hour retention. Of all the cases, the average free HCl was 32.6, the average total acidity 47.9. Gastric achylia was observed in 20.9 per cent of cases. Of 12 cancer cases, where there were test meal records, free HCl was constantly absent. When such was combined with gastric stagnation, lactic acid was demonstrated. In cases of this type the analysis of the gastric contents so strongly resembled those from cancer patients that from this evidence alone no diagnostic differentiation was possible.

Roentgen Evidence of Gall-Bladder Disease. In 87 consecutive instances of cholethiasis, the stones were definitely or inferentially demonstrated by plates in 19 cases (21 per cent). Frequently, the laparotomy revealed great numbers of stones where the x-ray plate had shown but several or where upon the plates only vague shadowy outlines of calculi or enlarged, misplaced or malformed gall-bladder were evident. In a few instances of greatly distended gall-bladder, the radiogram revealed an atypically placed, upper abdominal shadow that in view of the history and the physical examination was judged to be the gall-bladder.

Pulmonary Anthrax. A case of pulmonary anthrax is described by W. R. Brooksher, Jr., and J. A. Briggs, Binghampton, N. Y. (Journal A. M. A., Jan. 31, 1920). The case is reported on the grounds of its rarity, and the authors conclude that this infection can be diagnosed only by positive laboratory findings in the sputum and the blood. Early diagnosis is essential, and it would seem that vigorous treatment by intravenous administration of antianthrax serum offers the only hope.

A SUMMARY OF RECENT STUDIES ON SPECIAL REQUIREMENTS IN NUTRITION*

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The studies of the past decade have brought forth many new facts concerning the elements of nutrition. Perhaps the trend of modern living has to some extent made necessary a more detailed study of the constituents of an adequate diet. The theory that protein, carbohydrate and salts are the only factors necessary in the diet has been abandoned. Not that these are of negligible importance but that there are other important factors as well. For physiologic well-being there is a multiplicity of contributing essentials. Tho the physiologic importance of some factors remains unsettled, certain special requirements have been determined and their indispensibility definitely established.

These special requirements may be divided into two groups—the first group containing those of known chemical nature, the second group those of unknown chemical nature. For a knowledge of the substances of known chemical nature science is indebted primarily to Abel[1] who upset previous speculation as to the nature of protein absorption by establishing for all time that proteins are split into amino acids in the intestinal tract and absorbed as such. This discovery made possible an entirely new field of study, that concerning the adequacy of certain proteins in the diet as determined by the amino acid content.

Not all proteins have the same amino acids present nor are they in like proportions in different proteins. It remained then to establish experimentally an adequate protein, one that contained all the necessary amino acids and in about the proper proportion. Naturally the protein that it would take least of to establish a nitrogen balance would be the flesh of like species. Any other protein must be taken in larger quantities that the proper synthetic products may be obtained to build body protein. A protein may be lacking in the amino acid glycocoll, and this be synthesized in the body. The others cannot be synthesized, at least in amounts needed. It is necessary that the protein contain tryptophane and lysin. The amino acid trytophane is necessary

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for maintainance, lysin is necessary for growth, Still another, cystine, is favorable for growth, that is, growth is better with it than without.[2]

These findings have indeed been enlightening. It seemed that now an animal could be fed a purified diet—a diet in which all the factors were known—and normal life maintained. This has not proved to be the case. The findings of McCollum and Osborne and Mendel in this country and such men as Funk, in Germany, and Hopkins, Drummond, Harden, and Zilva, in England, have shown that a purified diet is lacking in certain food constituents which are of the very greatest importance for life.

There are, then, unknown factors or substances necessary to add to a purified diet or a diet, the known constituents of which seemed to indicate its adequacy for maintenance and growth. These factors have been variously termed vitines, vitamines and accessory substances. The term perhaps most commonly used is vitamines.[3]

The work of McCollum and Davis, in 1914-15, led them to propose the hypothesis that an adequate diet must supply in addition to the recognized constituents—protein, fats, carbohydrates and inorganic salts of adequate nature and amounts —two unidentified factors. One is soluble in water and alcohol and the other in fats or, as they are now called, water soluble B and fat soluble A. The latter is extracted from milk, or butter, egg yolk, cod liver oil, kidney, liver and perhaps other animal tissues and from seeds and leaves of plants. Water sol. B is universally present in foodstuffs of vegetable and animal origin. It is absent from crystalline sugar, starch, fats and polished rice. McCollum has been led to believe each of these is a single substance.[5] He has investigated the dietary deficiencies of several of the more important foodstuffs.

He found that a diet containing an adequate protein, that is, one yielding all the amino acids necessary, suitable salts and energy producing foods, protein, carbohydrate and fat, must in addition contain the substances of unknown chemical nature A and B.

If, for example, rats are fed a diet complete in the above factors with the exception of fat sol. A, they develop a type of xerophthalmia. The tissues about the eyes become puffy and swollen, closing them. The cornea is inflamed. Blindness is eventually effected but, if early in the disease fat sol. A is added to the diet in the form of fresh butter, milk or egg yolk, the condition responds readily and a cure is brought about.[6] Here, then, is a distinct "deficiency" disease. The effects of the absence of this factor may be noted in large but poor baby homes, where centrifugalized milk is obtained in quantities from the creamery at a low price. Vegetable margarine, carbohydrates and salt, potato soup and fruit juices usually constitute the remainder of the diet. Cases are prevalent in both the rural districts and cities of Denmark and Belgium. Cod liver oil added to the above diet makes it an adequate one.[7]

Beri beri, or polyneuritis, he has shown to be a deficiency disease.[8] It is caused by the absence of water sol. B which is widely distributed in foodstuffs of vegetable and animal origin but absent from crystalline sugar, starch, fats and polished or white rice. Animals fed on an otherwise adequate diet develop a degeneration of the peripheral nervous system, especially motor. The disease has been met with in the torrid zones, where polished rice constitutes about the sole diet. The symptoms are readily relieved by giving a little of the rice polishings.

More commonly known but less well understood until recently at least is the deficiency disease known as scorbutus or scurvy. McCollum's[9] work on the guinea pig at first led him to believe that scurvy was due to physical properties of foods rather than chemical. On a diet of oatmeal and milk guinea pigs developed scurvy in his laboratory. They became very badly constipated and this was thought to be the cause of the onset of scurvy symptoms. Petrolatum relieved the condition and even prevented the onset. Such an oil has no chemical effect in the intestinal tract. Hess[10] has since shown that in children petrolatum neither relieves the symptoms nor prevents their occurrence when the diet is faulty. Harden and Zilva have been able to prevent scurvy in guinea pigs on a diet of oats and milk, provided suffiicient milk was consumed.

McCollum's animals did not get enough milk to be effective as an antiscorbutic.[11] This has given rise to so-called water sol. C,[12] an antiscorbutic substance present in fresh milk, tomatoes, oranges, lemons, potatoes and cabbage and in smaller quantities in other foodstuffs. Hess states[13] that there may be an idiosyncracy toward certain of the above which may make it necessary to choose a different antiscorbutic. For instance, in some cases orange juice may not give good results, while potatoes produce a rapid cure. He has given the juice from strained canned tomatoes to a large number of infants for nearly a year and finds it well borne by the babies and a very efficient antiscorbutic. This fact is important in view of the comparative low cost and availability of tomatoes.[11]

Concerning pellagra which is so common in Italy less definite statements may be made. However, a study of the disease seems to indicate that it may be due to a deficiency in the diet. It spreads like a wave over certain sections of Italy in the spring months and tends to disappear during the fall. Each attack is followed by one more severe the next spring. The diet of the winter months is largely cereal which has often been long and poorly kept, while the summer brings fresh vegetables to supplement the standard diet.

The missing link in the diet that leads to rickets is also dark. Henderson[15] found the disease in puppies kept in his laboratory and fed similarly to those kept in the country where rickets did not develop. Mellanby[16] produces the disease in dogs kept on a diet of separated milk, bread, linseed oil, yeast, orange juice and sodium chloride. Butter or cod liver oil prevents the onset in his animals, when added to the above diet. Either suet or lard seems to prevent, when given with 10 grams of meat. He is inclined to believe that those substances, containing and associated with fat sol. A, are particularly concerned in the calcification processes of the bones and teeth. Holt[17] uses cod liver oil with good results in children. By some means it allows for a greater calcium retention. Phosphorized oils are also effective. Hess and Unger[18] have proven the efficacy of cod liver oil, tho by no means do their results show 100 per cent cures. Since milk will not prevent ricketts and since lard seems to be effective, it is probably too early to associate this disease with fat sol. A.

Having found the specifics for the deficiency diseases polyneuritis, xerophthalmia and scurvy, a further study of the stability of these substances becomes of material interest. How is the efficiency of these factors affected by heat, cold storage, dehydration and long standing at room temperatures?

A is probably destroyed at a temperature of 100° for an hour. In fact destruction occurs at any temperature from 50 to 100° but is less rapid. Exposure for several weeks to a temperature of 37° destroys. Hydrolysis of oils containing A causes disappearance of the factor.[10] Butter exposed eight hours to ultra violet light undergoes changes in which fat soluble A becomes inactivated.[20]

Water soluble B is also heat labile, tho less so than the A factor. It is claimed that bread containing baking soda loses its antineuritic properties during baking. Extracts of rice polishings rich in B tend to lose this factor when made alkaline (3-Funk). Meat heated at 120° for three hours when tested does not prevent the onset of polyneuritis. Meat is a relatively poor antineuritic, however, at best. Peas do not seem to lose their potency by heating to 112 to 115° C.[21] This is, perhaps, a more severe test than they undergo in canning. Likewise, from recent evidence of Daniels and McClurg,[22] it seems improbable that the antineuritic factor is destroyed by commercial canning of such foods as green beans, spinach, corn, pumpkin and fruits. Greater destruction takes place when cooking in an alkiline medium than in neutral or slightly acid. Yeast is an efficient agent to combat polyneuritis and does not lose this property when subjected to ordinary heating processes.[23]

With respect to water soluble C or antiscorbutic substance it may be said that raw milk is not particularly rich in this factor and an infant requires at least one pint daily. If the milk has been pasteurized, condensed or evaporated, considerably larger quantities are necessary.[14] The tomato dried[24] or canned[14] retains good antiscorbutic properties. Cabbage and potatoes lose considerable of their efficiency upon prolonged heating or dehydrating.[25] Orange juice[26] and lemon juice,[27] the most common antiscorbutics, retain this property when boiled or even dessicated. Standing tends to cause deterioration.

The stability of these substances becomes the more important because of the increased tendency to use in the diet canned and dehydrated fruits and vegetables, margarines and evaporated or storage eggs. It was during the civil war that canning was begun. Dehydrating or drying is centuries old in the home but it is now a much greater industry. There are some twenty-five dehydrating plants in this country. There are at least three in and around Portland. The temperature and time of exposure used in the process varies in the different plants. By this process great quantities of food are saved that would otherwise perish. Dehydrating facilitates transportation. Six car loads of potatoes make only one when dried. Dried tomatoes take one-twelfth the shipping space of canned tomatoes.

It has been demonstrated in the armies recently that men may develop scurvy, when kept on too strict a diet of dessicated foods. Yet it is possible to give properly dehydrated foods that contain the antiscorbutic factor. It is time that unjustified conclusions should be avoided concerning these products. Knowledge of vitamines is in the making. Fortunately at the point where chemical analysis fails physiologic experiments prove to be a dependable guide. It does not seem unreasonable, in view of recent findings to predict that governmental regulations will fix at some later date the maximum temperatures to which conserved foods are to be exposed. These temperatures will have been established for the various foods thru laboratory experimentation.

The commercial man is just beginning to recognize the term vitamines when mentioned but it means little to him. In a few years he will be familiar with it and the label of his product will bear notice of its vitamine content. Perhaps the fluctuating market has hastened these conditions. Advantage is taken of the situation. Eggs are stored or evaporated, margarine is made (some with butter or oleo oil as a base, other brands with inadequate vegetable oils[28]), milk is condensed or evapodated. These products undersell the fresh products at nearly all seasons. Those with limited means buy these products entirely. The calory value may be as great but as yet there is no means of these people knowing whether or not the unknown but necessary factors are present.

Unfortunately growing children become the victims. A recent survey of school children in New York is of interest. It has been estimated[29] that one-third of the school children of that city are so much below normal standards of growth as to call for special nutritional care. About one-third of these require medical treatment, while the other two-thirds may be expected to respond to improved diet. There are about a million school children and about as many more between the ages of two and six, and six and sixteen not in school. If conditions found in the school children are at all typical, this means that there are more than one-half million children in need of nutritional attention in New York alone. These statistics may not be applicable in general. However, they should serve to arouse interest and investigation in other cities, where children require additional attention and the aid of physicians that they may be placed on a plane of better efficiency. Naturally the lay members of society look to their medical advisors to lead the way. This can be done only when the physician becomes interested in and finally familiar with the subject itself.

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THE RELATIONSHIP EXISTING BETWEEN GENERAL DIGESTIVE CONDITIONS AND MOUTH CONDITIONS*

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The teeth and gums are merely a part of the digestive machine and help to do a portion of the mechanical work of preparing the food for assimilation. That the digestion of the average person is dependent in a large measure upon the condition of the teeth has long been recognized by both physician and dentist, and also the relationship of the whole digestive system upon the mouth, but neither the physician nor the dentist, in my opinion, up to the present time has given these conditions enough consideration in the treatment of their patients.

That there exists a relationship between the diseases of the teeth and mouth and the diseases of the stomach and intestines none can dispute. In the medical and dental schools we have been taught that bad teeth, poor mastication and infected gums are a cause of digestive disturbances. We have thought only of one side, one part of the relationship of the physiology of digestion. I am convinced that diseases of the stomach and intestines, constitutional diseases, and a faulty unbalanced food, may profoundly effect the teeth and mouth and produce caries of the teeth and pyorrhea alveolaris. Many patients consult a physician when they need a dentist, and a dentist when they need a physician. It is the sifting process, the getting down to the real cause of the troubles and thereby benefitting the patient the most, that constitutes the central thought of this paper.

A patient came to me a few days ago for stomach trouble. He had typical symptoms. He had been seen by several physicians and in spite of treatment had steadily grown worse. A dentist had only a few weeks before finished working on his teeth. As his stomach symptoms had been present only a short time and as he had the appearance of having been sick a long time, I looked for the cause elsewhere. The leukocyte count was high. The x-ray revealed the cause, and he was sent to a dental surgeon to have every tooth extracted, as he had pus in both antrums and pus pockets about his teeth. In a few days he was at work again. The mouth in this case was clearly the cause of the trouble with his stomach.

Again, a young lady came to me with a very sore tongue and mouth which had resisted treatment for four years. She complained of nothing else except her teeth. They had been filled and refilled, while several were lost and replaced by bridge work. A careful examination revealed an atonic condition of the stomach with deficient amount of gastric secretion; even litmus showed acid in the mouth. After the correction of the stomach trouble the mouth healed without any local treatment and has remained so for months. Had the stomach condition been recognized sooner she would have had a good set of teeth today. In this case the stomach was clearly the cause of the trouble with the mouth and teeth.

To make my position perfectly clear, let me say that acid conditions of the mouth and all mouth pathology due to acid foods or medicines, fungi, and decomposing food material are purposely omitted in this discussion. Every physician and dentist recognizes these conditions. I have in mind only those cases where the condition of the mouth cause dyspeptic symptoms; or where stomach diseases produce pathology in the mouth.

I have been interested recently in studying the mouths and tongues of patients. From time immemorial the tongue has been considered the "index" of the digestive system. It was the first thing the old doctor of our fathers used to examine. And I must say that, in the light of what I have found, I do not consider looking at the tongue old fashioned for either physician or dentist. A "coated tongue" may come from two causes—local or general. The local causes are infections of the mouth, nose, throat or tonsils, which can be plainly seen and which does not concern us here. It is infrequent in comparison with the general cause. The general cause of a coated tongue is the condition of the stomach and intestinal tract. The stomach is a mere dilation of the digestive tube. If you remember, the digestive canal in early fetal life is a straight tube of even diameter, and the size and length depends on the uneven growth in various areas as the child develops. The upper outlet of the stomach, the cardia, has a weak sphincter muscle, shutting it off from the esophagus. A coated tongue is, therefore, an extension of the condition in the stomach up to the esophagus and on to the base of the tongue.

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There is a retrograde movement of particles of food from the stomach up the esophagus. To prove this condition I took lycopodium powder and put it in gelatine capsules. These were brushed and washed off till not a particle of powder remained on the outside. If these powders were swallowed at night, lycopodia powder could be taken off the tongue of most people in the morning, and so recognized under the microscope. In certain individuals more or less could be found. In some cases the powder was found on the tongue in sixty to ninety minutes. Other insoluble powders have been used with the same results. Dr. Kast, of New York City, has carried out a similar line of experiments with similar results. This experiment shows conclusively that there is an upward movement of particles of food from the stomach to the mouth, that the rough part of the tongue catches this food with mucus and bacteria and this forms a breeding place for germs with formation of acids of decomposition. As this lies in the closest proximity to the teeth, we have the pathologic setting for teeth involvement.

This retrograde movement is found in some people with seemingly no diseased condition of the stomach, but rather in the infantile type of gastric anatomy; for in the infant the stomach lies almost perpendicular and assumes the transverse position as the child grows older. A coated tongue is generally found in a low acid condition of the stomach, as acid in the stomach closes the cardiac sphincter tightly, atonic stomachs, retention in the stomach, chronic catarrh of the intestines, cancer, appendicitis and gall-stones.

Seldom a day will pass that the dentist with an ordinary practice will not have in his chair some of the preceding types for patients. If he is alert and if he wants to do the best by his patients, in fact if he wants to fortify his own work, it stands him in hand to notice the condition of the patient's tongue, mouth and general health, and if questionable to send him to a physician. Patients have come to me vexed with their dentist because their work has not lasted, when in fact the dental work was an excellent job. The only criticism that could be offered against the dentist was that he failed to recognize that the patient needed a physician and to send him to have his digestive disturbance corrected.

For almost all patients with digestive disturbances who come to my office I am having x-ray plates taken of their teeth. Twenty-two per cent have serious pathologic conditions in their mouths. The symptoms of one woman who had worn full plates for years, not knowing that she had a tooth in her mouth, all disappeared when an unerupted third molar had been extracted.

Some years ago Dr. J. H. Kellogg made a study of 100 cases, reporting on the condition of the teeth with special reference to the digestive organs. Of these only two had perfect teeth. Of those suffering from the deficiency of gastric acid, about 50 out of the 100, 10 per cent had fair teeth, while of those suffering with hyperacidity 20 per cent had good teeth. Of those suffering from a simple dyspepsia none had artificial teeth, while of the 51 suffering from deficiency of gastric acid 12 had artificial teeth, 5 had upper sets only 7 both upper and lower sets. Of those suffering from gastric catarrh the number of sound teeth was only one-half as many as in persons not so affected. These facts seem to show that there is an undisputed relationship between diseases of the stomach and dental caries.

In conclusion, let me say that the dentist who notices the coated tongue, the bad breath, the dingy complexion, constipation, and a mouth full of decaying teeth will benefit his patient materially, if he not only treats one part of the trouble—the teeth—but sends him to a physician who is competent to correct the digective disturbance. He will thereby fortify his own work and gain the patient's everlasting gratitude.

Pyelonephritis. P. W. Aschner, New York (Journal A. M. A., Jan. 31, 1920), says that recently the pendulum of opinion has swung toward conservation of the diseased kidney in pyelonephritis, making decapsulation or nephrotomy the methods of choice. Some take a middle ground and are guided by the bacteriologic findings of the urine obtained with a ureteral catheter, choosing nephrotomy for the milder bacillary infections such as B. coli and B. pyocyaneus, and reserve nephrectomy for the coccus infections. He denies that any hard and fast rule can be relied on, and decision as to operation must be made from the patient's clinical condition, his estimated natural power of resistance and the margin of safety. It is evident, he thinks, that nephrotomy or decapsulation cannot effectually remove or drain the infected tissues, but can only relieve tension and engorgement. The operation doesn't remove the focus nor protect against extension and metastasis. The nicest clinical judgement is required and a primary nephrectomy is by far the safest measure when there is severe septic absorption and renal insufficiency with nitrogen retention, and in long standing cases with loss of weight and strength. The margin of safety is small with these patients, and life must be conserved. Two cases, illustrating these points, are reported.

SOME OBSERVATIONS ON VINCENT'S ANGINA. REPORT OF EIGHTY CASES.

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During my work on the first few cases of this peculiar ailment, I rather doubted the specificity of this disease. Since I have had greater opportunity to study these cases, and also to observe a relatively large number in a short space of time, I have changed my opinion and now hold practically the same conceptions of this disease as did the first investigators. Vincent's angina, like many other diseases, is extremely variable in its manifestations. I have especially noted how frequently it resembles syphilis. The membrane on the palate or tonsil often similates a diphtheretic membrane. The symptoms, however, never closely resemble diphtheria. It became very prevalent in the trenches in 1915, and was termed "trench mouth."

Numerous articles have appeared on the subject, but the largest number of case reports have been very recent. I doubt that there are more cases of Vincent's angina than formerly but, because better diagnostic methods are now employed than previously, more diagnoses are being correctly made. In the years 1912, 1913 and 1914 we made the diagnosis on only twelve cases in both private and charity practice. This number has risen rapidly in the last twenty months to nearly 100 cases.

In the attempt to see if the normal mouth might harbor typical Vincent's organisms, we reviewed 150 smears made from throats at the County Hospital for the purpose of picking up a diphtheria carrier. Not a single slide was suggestive of Vincent's angina. The culture work and animal inoculation done in our laboratory has been entirely unsatisfactory. This has been substantiated by Sugden who has been unable to grow the organisms successfully or recover them after inoculation in the mouths of rabbits, guinea pigs or cats.

Reiche has encountered 139 cases of Plant Vincent's angina during twelve years work in the Hamburg Hospital, 23 cases being associated with diphtheria. I. Adams reported finding the organisms in the middle ear and Mullholland reported 16 cases of ear infection from these organisms. Stark reported 25 cases successfully treated with sodium perborate. Raymond reported cases in which the tonsil was almost totally destroyed in a very short time by the organism. He is very partial to the silver nitrate treatment of these cases. Favore and Dreyfus conclude from their research work that the best treatment is to clean out the ulcer with silver nitrate, and then wash it with 1 per cent methylene blue. Campbell and Dyas recently reported 129 cases of Vincent's angina affecting troops. Many of their cases were found in syphilitics undergoing intensive mercurial treatment.

I have at present records of 80 cases, most of whom had a mild form of the disease and were easily controlled. Fifteen cases are not reported because of incomplete records. Three of the 80 cases died, giving approximately 4 per cent mortality. All had practically the same symptoms and had typical microscopic findings. The ulceration and edema of the throat and adjacent structures were extreme. The odor was extremely offensive and the intoxication was so severe as to produce coma before death. One case lived five days and the other seven after diagnosis and admittance to the hospital. The following four histories are typical of those that react extremely well to treatment.

Case 1. Mrs. H. Patient is 43 years of age, always had good health until the present trouble which began three months ago with sore throat and painful gums. Had ulcerated nasal passages, considerable purulent secretions coming from the nose mostly at night. Breath was so bad as to make her family and neighbors nauseated when in the same room with her. Three dentists had treated her for pyorrhea, and her physician had given syphilitic treatment.

Examination showed large ulcerated patches on both tonsils, with painful, spongy areas along the gums and roof of the mouth. She had some ulcerated teeth and six crowns. Temperature 100°, pulse 96, Wassermann positive. Typical Vincent's angina smears were obtained from all ulcerated parts of the mouth.

The syphilis was ignored and treatment for angina was commenced. In six days all bad odor had left and ulcers were well controlled. Smears still showed the germs present around the teeth. so the crowns and bad teeth were extracted and treatment continued for a week. In the following week negative smears were obtained each day. After the last, mixed syphilitic treatment was commenced.

Case 2. Patient is a youth of 19. While in school in Boston, he became ill and was compelled to go to bed. At first his physician pronounced the trouble typhoid, but later decided it was influenza and sent him home to Utah. He was seen by Dr. A. J. Hosmer, who noticed small ulcers back of the right tonsil. Smears from these ulcers were typical of Vincent's angina. A few days of treatment eliminated the fever and all other symptoms.

Case 3. Mr. D., a healthy young man of 23, had some very soft and sore gums which bled in the slightest trauma. His dentist had treated him for ten days and had told him that he had Vincent's angina. He failed to respond to his treatment, and on the tenth day an ulcer appeared on the tonsil. This grew rapidly, having pierced practically the entire substance of the tonsil in fourteen hours. Typical specimens were obtained from this ulcer, and on appropriate treatment the tonsils and gums cleared rapidly.

Case 4. Mr. P., aged 30, a business man, had symptoms very similar to these just mentioned about a year previous to the present examination. At that time he was extremely ill for three weeks. Finally he recuperated somewhat, but has been sickly ever since and under treatment most of the time. His gums were very sore and breath always had a foul odor.

Examination is typical of Vincent's angina. The treatment was commenced first mildly, with no benefit, then very energetically with intravenous salvarsan and local treatment. His physical condition improved somewhat, but the spirillum and the long fusiform bacillus are still present, despite most persistent treatment.

Many forms of treatment have been advocated. Among these are lobelia, silver nitrate, Fowler's solution, methylene blue, salvarsan, emetine hydrochloride, iodine, ferric chloride, hydrogen peroxide and perborate of soda. In my work the following routine has proved most efficacious: All infected sinuses or pus pockets should be cleared up, any bad teeth or roots must be removed, caps and crowns must receive special attention. If the patient's general condition is very bad, salvarsan should be given, starting with .1 gm., increasing dose and repeating every third day until .6 gm. is given per dose. In the milder cases liquor potassi arsenitis should be given, two drops every two hours. The mouth should be washed night and morning with perborate of soda, and gum margins and tonsils should be painted every second day with silver nitrate, 1 per cent solution.

It is noticeable how frequently dentists and doctors are equally offenders in failing to make the diagnosis. Several dentists have made the statement that they are able to tell this condition by the peculiar appearance of the gums. I very much doubt this, for in all the cases referred to me I have thought that the ulcer was possible Vincent's, but it required microscopic examination to verify the clinical diagnosis.

This necessitates the finding of the long spirillum, whose curves are not regular, and in bad cases clump together, forming a large mat or rope on the microscopic field. With this is found a large, thick fusiform bacillus. These both must be seen before a diagnosis can be made, for we frequently find a number of specific spirilla in the mouth cavity, as we do also bacilli of various kinds. Neither taken alone should be considered pathognomonic of Vincent's angina. A greyish membrane in the mouth or an ulcer rapidly destroying tissue should always be held suspicious, until an absolute diagnosis is made. Eighty-five per cent of these cases had a peculiar, offensive odor.

It must be differentiated from diphtheria and syphilis. Of these cases reported, 25 per cent also had syphilis. The Wassermann was omitted only in twelve cases. Craig has demonstrated the group nature of complement fixation, obtained from alcoholic extracts of treponema pallidum, treponema pertenae and treponema microdatum. This, in connection with my own observation of the large number of positive Wassermann in Vincent's angina cases, has led me to suggest that the Wassermann might not be specific for syphilis in an gina cases.

A PLEA FOR EARLY OPERATIVE INTERFERENCE IN ACUTE SUPPURATIVE AFFECTIONS OF THE MASTOID BONE*

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It shall be my purpose in the present communication to draw your attention to the importance of early operative interference in acute suppurative mastoiditis, by pointing out a few of the dangers of delay. In the first place, it may not be amiss to qualify the word early. By "early" I do not mean "as soon as the diagnosis is made," except in those cases classed as emergencies and which are recognized by all. But, in the absence of any apparent urgent symptom, I feel that the interests of our patients would be best served by operating on every case of acute suppurative otitis media that fails to respond to intelligent, non-operative care for a period of three weeks. To some this attitude might seem radical, if not ultraradical, inasmuch as they could cite numerous cases of acute finally made a recovery after a longer interval of non-operative care. But what about the possibilities for harm during this extended period, to say nothing of the inevitable damage to the hearing and the general health which results from this ultraconservative attitude?

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*Read before Spokane County Medical Society, Spokane, Wash., Sept. 25, 1919.

In dealing with a case of acute suppurative mastoiditis, the apparent radical attitude, for which a plea is made, will be found ultimately to be really conservative, inasmuch as it has for its chief object the conservation of hearing, health and even life itself. Who is there that can say with certainty that in any given case of acute suppurative mastoiditis it is absolutely safe to continue non-operative treatment, when the discharge shows no indication of abatement after three weeks of rational therapy? As long as we have to deal with such variable factors as the virulence of the infecting organism, the resistance of the patient, and the anatomic configuration of the mastoid process, we can never with a certainty forecast the outcome.

Let us consider each of these factors seriatim:

(1) The virulence of the infecting organism. Bacteriologic aids can give us information as to the type of germ present and we have felt that the dangers of delay are more increased with certain types present than with others, but the one bit of information that is not given us is the degree of virulence of the particular type which is present and, as long as this information is withheld from us, we are literally playing with fire, the danger of which is in direct ratio to the length of time an acute infection remains uninfluenced by medical treatment.

In order, however, to obtain the maximum benefit from our bacteriologic findings, it is essential that a microscopic examination be made frequently, in order to detect changes in the nature of the infecting organism as early as possible. For instance, it is not an isolated experience to find a comparatively non-virulent organism replaced in a few days by a most virulent germ. And in this connection it is safe practice to regard the streptococcus mucosus capsulatus as an absolute indication for operative interference.

(2) The resistance of the patient. This factor like the above is also an unknown quantity. True, certain laboratory aids, as the differential blood count, give us some information, and just recently Walker (J. A. M. A., 1919, lxxii, 1453) has discussed the subject of body resistance in acute inflammatory processes as indicated by an examination of the blood. While his conclusions favor Sondern's hypothesis that the proportional relation of the total leukocytes and the polymorphonuclear percentage seems to be an index of body resistance, there is still an element of doubt present.

(3) The anatomic configuration of the mastoid process. Granting that we know definitely the degree of virulence of the infecting organism and the index of the patient's resistance, we would still be faced with the fact that there are variations in mastoid structure which influence the course of mastoid disease. When we consider the dimensions of the mastoid process, the vital structures surrounding it on three sides, and the variations in the density of the mastoid walls, we must all agree that he would be a very rash practitioner who would forecast in every case the course of events. As a chain is no stronger than its weakest link, so is every mastoid abscess as likely to break thru into the cranium or the sigmoid sinus as that one in which the bony walls are of paper thinness.

To illustrate the influence which the anatomic arrangement of the mastoid structures may have on the symptoms and course of a given case of suppurative inflammation of the bone, permit me to draw your attention to a few concrete facts. In the first place, we are all well acquainted with the two extreme types of bone, the one in which the antrum and cells are separated from the surface by a thick, dense cortex of bone; the other in which the mastoid process consists of a thin external shell of bone filled with large pneumatic spaces. With the same type of infection and uninfluenced by the general resistance of the patient, a suppurative inflammation in these two types of bone will take an entirely different course, presenting diametrically opposite groups of symptoms and signs.

While an infection in the dense sclerosed type of bone will present few or no urgent symptoms, this is the type in which delay is very dangerous. On the contrary, an infection in the pneumatic type will early present external signs and symptoms apparently the most threatening, but it is in this type that the danger is less and a persistence in the non-operative treatment may result in resolution. It is this result which offers to the practitioner his excuse for persisting longer than three weeks in his non-operative treatment. But how are we to know with which type we are dealing and just how much necrosis is present in the direction of the vital structures? True, a properly made roentgenogram, that is stereoscopic and including the normal as well as the diseased mastoid, can give us some information relative to this topic, but how many are prepared to avail themselves of this information and further how many are qualified to give a correct interpretation of the x-ray findings?

An explanation of the diversity of symptoms presenting in an infection of these two types of bone and of the difference in the degree of danger from delaying operative treatment, is not hard to find. When the infection is in a small deeply placed antrum, surrounded by a dense, thick cortex of bone, it takes a great deal longer for the subsequent periostitis to develop and until this does occur we obtain none of the classic signs, such as redness and infiltration of the skin, tenderness on pressure, and drooping of the posterior canal wall. But while these signs, long held the important indications for operative interference, are being awaited, the infection still spreads, and taking the course of least resistance is most liable to invade the cranium or signoid sinus before any external evidence of grave trouble is at hand. And just at this point it may be well to add that the temperature is no criterion of the progress of the lesion, except when it is really too late to be of any service in preventing the most dreaded complications of this disease.

Now, when an infection develops in the pneumatic type of mastoid, the cortex being thin, we obtain very early external evidences of the trouble, and tenderness on pressure, because the periosteum is quickly affected. It is in this type that consent for operative interference is most readily obtained, but, as was mentioned previously, these are the cases, if any such there be, where temporary delay may do no harm and the non-operative treatment succeed in causing an abatement of the urgent symptoms and the patient ultimately recover. But it is always well to bear in mind that, unless we are absolutely certain that delay will do no damage, we had better err on the opposite side, remembering ever that it is always the part of wisdom in these uncertain mastoid infections to operate too early than to operate too late.

Until such time, then, as these above mentioned variable factors become more invariable; until we are able in every case to prognosticate the course of a given infection when left alone surgically; until that time, we have not the right to offer our patients assurances of safety that do not exist.

Now let us for a moment consider the other side of the subject. If we can not conscientiously offer a reasonable hope from a continuance of the non-operative course, what have we to offer in favor of the surgical care of these cases? Everything. (1) A skilful operation on the mastoid in acute disease is practically without danger to life. (2) It is the most rational way of dealing with a suppurative focus that does not promptly respond to medical measures. (3) It obviates the possibility of there remaining a latent focus which sometimes obtains after a prolonged, apparently successful non-operative case. (4) It more quickly permits resolution of the inflamed tissues surrounding the essential structures which govern the power of hearing.

From the foregoing remarks the following conclusions are offered:

1. Frequent bacteriologic examination of the secretions from an acute suppurative otitis media should be made.

2. Wherever the streptococcus mucosus capsulatus has been identified as the infecting organism, operative interference should be instituted at once.

3. Every case of acute suppurative mastoiditis not responding to approved medicinal measures after a period of three weeks is a potential source of danger and should be subjected to operative interference.

4. The virulence of the infecting organism, the resistance of the patient and the anatomic configuration of the mastoid process are always variable factors, and as such preclude an absolute forecast of the outcome of any acute suppurative inflammation of the middle ear.

5. A skillful operation on the mastoid in acute disease is practically without danger to life.

6. It is the most rational way of dealing with a suppurative focus that does not respond to approved medicinal measures after a period of three weeks.

7. It obviates the possibility of there remaining a latent focus which sometimes obtains after a prolonged, apparently successful non-operative case.

8. It more quickly permits resolution of the inflamed tissues surrounding the essential structures which govern the power of hearing.

NERVE BLOCK ANESTHESIA IN SUPERIOR THYROID POLE LIGATION*

JOHN HUNT, M.D., F. A. C. S.
SEATTLE, WASH.

Anesthesia of the skin area to approach the superior thyroid pole can easily be produced by blocking the ascending branch of the cutaneous colli nerve, but lack of knowledge of the anatomy of the nerve supply adjacent to and at the superior pole frequently causes a failure to produce anesthesia after the approach has been made. Consequently, there may be increased shock and a disappointment in results by not properly including blood vessels and nerves in the ligature.

In twelve postmortem dissections a branch from the superior cervical sympathetic ganglion extended external and posterior to the superior pole and entered the capsule on the lateral surface 1 cm. from the pole apex. This nerve was found to be two or three times the size of any nerve entering any other part of the gland capsule.

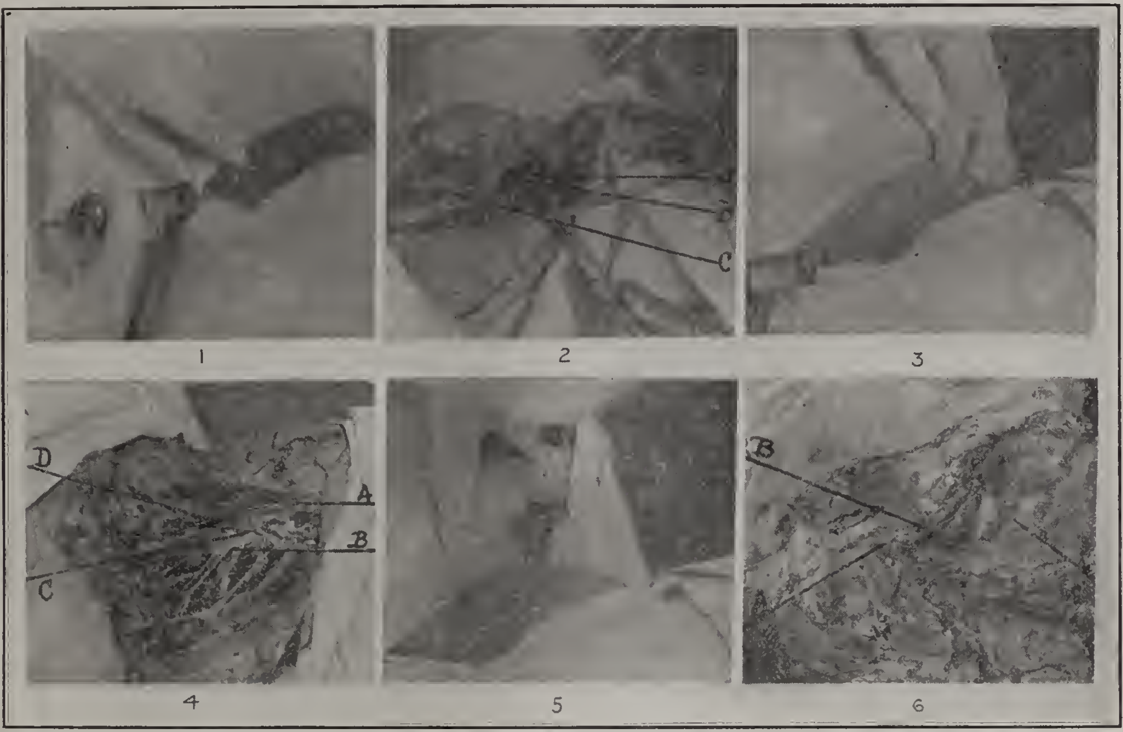

Fig. 1. Infiltration to block branch of superior cervical sympathetic on right side. Index finger indicates angle of lower jaw. Fig. 2. Dissection on left side of neck. (A) Superior cervical sympathetic ganglion, (B) branch going to (C) superior thyroid pole. Fig. 3. Infiltration to block ascending branch of cutaneous coli on right side. Index finger indicates thyroid cartilage. Fig. 4. Dissection on left side of neck. (A) Ascending branch of cutaneous coli, (B) descending branches, (C) posterior border of sternomastoid muscle, (D) external jugular vein. Fig. 5. Infiltration to block branch from external branch of superior laryngeal on right side Index finger indicates thyroid cartilage. Fig. 6. Dissection on right side of neck. (A) Ganglion nodosum, (B) superior laryngeal nerve, (C) nerve passing from external branch of superior laryngeal to superior thyroid pole.

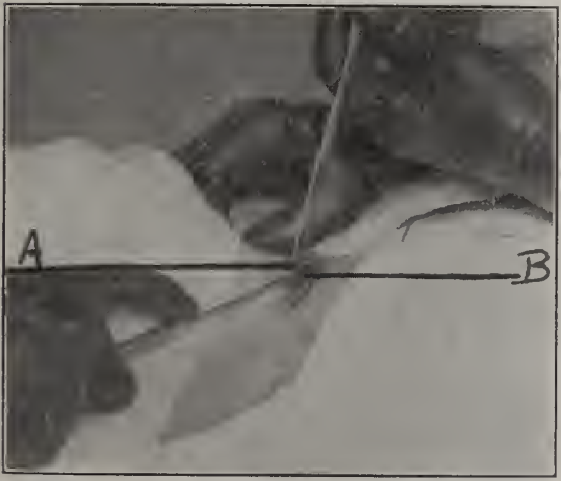

Fig. 7. Dissection on right side. (A) Superior laryngeal artery, (B) branch of superior cervical sympathetic entering thyroid capsule.

In ten of the dissections a small nerve was found as a branch of the external branch of the superior laryngeal, in the other two as a branch of the ganglion nodosum, but in each dissection invariably extended downward between the superior thyroid artery and cricothyroid muscle and entered the pole cupsule internal to the anterior branch of the superior thyroid artery.

It is interesting to note that there is, entering at or near the pole, a comparatively large nervve from the sympathetic nervous system and a smaller nerve which is a branch of a nerve which in part is a nerve of ordinary sensation. The larger nerve can be included, if the ligature is applied at least 2 cm. below the pole apex. In clinical observations on ten cases, where there was more or less acute exophthalmos, the amelioration of the symptom following pole ligation in which this nerve was included was such as to compare quite favorably with former reports of the Jaboulay operation. But, before applying a permanent ligature, does it not seem as reasonable to do a primary nerve block to lessen shock, as to block a mixed nerve before cutting?

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*Read before the Thirtieth Annual Meeting of Washington State Medical Association, Spokane, Wash., Sept.11-13, 1919.

To block the nerves and to cause sufficient anesthesia for a superior pole ligation, 5 to 10 cc. of one-third of one per cent novocaine solution in a hypertonic sale solution is infiltrated in a sphere approximately one inch in diameter, thru which each nerve extends. Slow penetration of the needle and infiltration of the tract should be practiced.

1. Point of skin penetration is lateral side of neck, opposite angle of jaw. Point of needle penetrates anterior to transverse process of third cervical vertebra, to within one inch of body of vertebra and sphere infiltrated to block branch of superior cervical sympathetic. (Figs. 1 and 2).

2. Point of skin penetration is lateral side of neck, opposite middle of thyroid cartilage, at posterior border of sternomastoid muscle, usually above point where external jugular vein crosses posterior border of muscle. Needle point is inserted to fascia of muscle and infiltration made to block ascending branch of cutaneous colli. (Figs. 3 and 4).

3. Point of skin penetration is opposite middle of and lateral border of thyroid cartilage. Point of needle penetrates to posterior part of outer surface of thyroid cartilage and infiltration made to block branch from external branch of superior laryngeal (Figs. 5 and 6).

Due allowance is always made for different types of necks and for anatomic distortion caused by glandular overgrowth.

Complete anesthesia is obtained twenty minutes after final injection. Then the approach to the pole can be made and the ligation undertaken without additional injection. (Fig. 7).

Advantages are (a) time is saved by blocking before starting the operation, because any infiltration does not produce a sufficient anesthesia under twenty or thirty minutes; (b) shock is lessened in a type of patient who is mentally unfit to withstand shock; (c) better skin repair because, where there has been infiltration along line of incision, often a local lymphodema persists for a number of months.

919 Cobb Bldg.

Empyema. Experience with empyema during the late influenza epidemic at the Cincinnati General Hospital is reported by J Ransohoff, Cincinnati (Journal A. M. A., Jan. 24, 1920). There were 3,688 cases of influenza treated, of which 625 proved fatal. Altogether fifty patients with empyema were transferred from the medical to the surgical service, or were primarily admitted to the latter, although this was not often the case. It was, however, a small factor in the death rate which was only 5 in all. A very large proportion of the deaths were due to the toxemia incident to the pulmonary disease before surgical intervention was called for. Aspiration in the cyanotic stage was practiced in only two cases, both fatal. That later interference in cases of empyema gives a better chance of recovery was shown in the forty-six cases in which operation was performed by incision, with three deaths in the hospital and one, two days after release. An average of at least 14 7-10 days in the hospital elapsed before operation. The average age of the patients was 21 years, somewhat below that in the military camps. Fourteen were below draft age, and curiously enough of these cases, three were fatal. Ransohoff says that it might well be claimed that the type of empyema differed in severity from that in military hospitals.

Venereal Disease. The measures taken in the campaign against veneral disease in the Third Division of the U. S. Army in the first four months of their occupation of Germany are described by D. M. Davis. Baltimore (Journal A. M. A., Jan. 24, 1920). He reproduces a memorandum issued by him during the pasage through Luxembourg, calling attention to the importance of the subject after reaching Germany. Each division solved its own problem, and the proposed program was as applicable in Germany as in France, with modifications called for by conditions in the occupied area. The headquarters were established at Anderach-am-Rhein, and the area coincided almost exactly with that of the Kreis Mayen. There are two moderate sized towns in the district and the population is about half agricultural and half industrial. The soldiers were billeted in the German houses, and, therefore, were into close and at times almost intimate, relations with the population. From the German officials it was learned there were no registered prostitutes or houses of prostitution in the district, but the city of Coblenz was from 15 to 25 kilometers away with good railway connections. From German sources it was learned that venereal diseases had become more common since the first two years of war, but the type of case to be combated was entirely clandestine. For nearly four weeks no cases of infection were reported—then a few appeared.

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EDITORIAL

MORE ABOUT BOTULINUS POISONING

Until a short time ago no one had ever heard of poisoning by the bacillus botulinus, but of late so much has been published in medical journals and the lay press of fatal poisoning from this organism in canned goods that there exists more or less trepidation among many people as to what it is safe to eat from this class of foods. At one time we were advised that the organism was found only in goods canned by the house-keeper, while commercially prepared foods were safe, but now reports are published of fatalities from the consumption of the latter class of canned foods. The last information from the United States Department of Agriculture is to the effect that there is no information obtainable as to how the bacillus botulinus gets into canned goods. They are just as likely to be found in the commercial article as in the home made.

Tho the organism was originally found in sausage, whence its name, it has been recovered more commonly from string beans, asparagus and the like, also from cheese. It has never been found in any kind of food that was not spoiled. There is no way of telling previous to canning whether or not it is present in the fresh fruit or vegetable. It is stated that in all poisoned cases investigated there is visible evidence that the goods varied in some way from the normal, either in unnatural odor or unnatural color, swelling of the container, signs of gas or some evidence of decomposition. Any one of these factors should be sufficient to condemn or destroy the articles instead of eating them. This substance is the advice from the Department of Agriculture. While the canned contents may be sterilized by heating so that it will be safe for consumption, one will be foolish to take the chance, the only safe guard being in rejecting it. Government officials have made strenuous efforts to discover and condemn impure and spoiled food but it is manifestly impossible to detect all the articles which may harbor this poisonous germ. It, therefore, devolves upon the individual consumer to protect himself by the evidence obtained from the senses of sight, smell and taste, and reject everything that is not evidently free from spoilage.

FACTS ABOUT CANCER

During recent years several wide-spread diseases which constitute a menace to the public have been very much discussed thru newspaper publicity and the dissemination of information pertaining to them. We have seen such results accompany knowledge as to tuberculosis and venereal diseases and statistics prove that their incidence and mortality have been accordingly decreased. Cancer is another disease which comes in this category, whose destructive effects may be manifestly modified and reduced thru its recognition on the part of the public and its early treatment by suitable measures. The American Society for the Control of Cancer has been in existence for several years for the purpose of accomplishing these results. Its directors include prominent members of the profession in all of our large cities. Its efforts are principally directed toward spreading information concerning cancer among the people in all parts of the land.

Great assistance and cooperation is being attained to accomplish this end thru the publications of the United States Public Health Service. It presents pamphlets under the "keep well" series, containing information about many diseases which can be read and absorbed by the average man. The pamphlet, entitled "Cancer Facts Which Every Adult Should Know," is one which every physician might well possess for distribution among his patients. It tells of the prevalence of cancer, showing that 90,000 deaths occur each year from this disease. It ranks with tuberculosis, pneumonia, diseases of the heart and kidneys as one of the leading causes of death. The fact that it is apparently increasing is brought out. It is shown what parts of the body are most commonly affected, how the disease develops and spreads. The fact is emphasized that advertising quacks with their cancer cures prove one of the greatest stumbling blocks in control of this disease, that there is no medicine which will cure it and corrosive pastes are worse than useless. There is no attempt to tell methods of cure but it is shown that the disease is curable if properly attacked in early stages. The main effort of this campaign of education is to warn the public of the early signs of the disease and make the average man familiar with the necessity of paying attention to every abnormal appearance and condition of the surfaces of the body and the internal organs. The more general use of these publications of the Public Health Service will greatly add to the well-being and general good health of the public at large.

MEDICAL NOTES

OREGON

Fight on for Vaccination. By a decision in the superior court the unvaccinated children in some sections of the state have been excluded from the schools, where smallpox has been known to exist and they must be transferred to a school which has not been exposed. This is in accordance with the law in some other states where compulsory vaccination is not enforced. It has been announced by State Health Officer Parrish, of Portland, that physicians can purchase vaccine points at twenty cents each, the price for which they are purchased by the city.

Christian Scientists Will Fight Vaccination. Because of efforts of health authorities to deny unvaccinated school children the privilege of indiscriminate school attendance, the "Public School Protective League," which is composed chiefly of Christian scientists, has announced that it will place a constitutional amendment on the ballot at the general election next November, in an effort to prohibit vaccination, inoculation or other medication as a condition for attendance in a public school.

Health Unit Formed. The Washington County Public Health Association has been formed at Hillsboro. This is the fifth county in the state to assume the expenses of a nurse to carry on the work. The Oregon Tuberculosis Association will carry on a vigorous campaign this year for the establishment of county public health nurses in every county.

Rock Pile Given up for Isolation Hospital. The city and county commissioners at Portland have decided to use the jail quarters at Kelly Butte as an isolation hospital for smallpox cases, until a suitable contagious hospital has been built in the city. Plans have been made for the construction of such a hospital to cost $35,000.

Physician Wanted. The town of Florence is very much in need of a physician, as there is none in that place. He would have exclusive practice over forty miles of territory and an opportunity to establish a drugstore. Here is an opportunity for some enterprising doctor.

Portland Ophthalmological and Otolaryngological Society has elected the following officers for the ensuing year: President, Dr. J. F. Beaumont, Portland; First Vice-president, Dr. S. E. Wright, Portland; Second Vice-president, Dr. R. E. Fenton, Portland; Secretary-Treasurer, Dr. C. Gertrude French, The Dalles.

WASHINGTON

Bulletin On Smallpox. Smallpox is so widespread in the state that State Health Commissioner J. B. Anderson considers it a public menace. He cites the bulletin recently issued in Chicago, stating that smallpox, an absolutely preventable disease, compels the maintenance of isolation hospitals to care for it. There ought to be some way to make those failing to be vaccinated to pay the expenses of hospitals maintained for their benefit alone. He asks if it is not about time that Washington should accept the truth about vaccination and have a law that will make it possible for health officers to render smallpox harmless and inexpensive. At present the few seem to have more rights than the many. It is time this condition were changed.

Contract Work Prohibited. At its annual meeting the Spokane Society adopted an amendment to the by-laws which denies the right of any member to engage in contract work. This rule, however, does not include physicians having contracts for men in public service, such as firemen and policemen, nor those doing railroad or interstate railroad contract work nor those making insurance examinations on a salary or percentage basis. This measure was adopted after considerable heated discussion.

Fort to be Converted Into Hospital. There is much discussion concerning the conversion of Fort Walla Walla into a hospital. The United States Public Health Service desires to utilize it as a hospital for the treatment of ex-service men afflicted with nervous diseases. At the same time an effort is being made to utilize a portion of the fort for a county tuberculosis sanatorium.

New Hospital Erected. At Pateros the New.Columbia Valley Hospital is being erected under the supervision of Dr. Fales. The grounds and buildings will represent an expenditure of $25,000. The Hospital building is 40x60 feet and equipped with modern appliances. It will be open for the reception of patients of any physician.

New Hospital to be Built. Drs. F. M. Crosby and D. C. Hopper, of Kennewick, have leased a residence which is to be converted into an hospital, to be known as the Kennewick Hospital. The building will be remodeled and the necessary equipment provided for a model hospital, to contain about fifteen beds.

To Build Hospital. The people of Sunnyside are arranging to build an hospital at the cost of about $50,000 which will accommodate fifty patients. A commercial club of the city is behind the enterprise.

Fire at Pulmonary Hospital. Last month a fire at the Pulmonary Hospital at Riverton was suppressed in time to prevent wide spread destruction. It occurred at eleven o'clock at night in the ward containing twenty-five beds. The nurses and resident physician succeeded in extinguishing the fire with the hospital fire apparatus.

Insane Hospital Crowded. The King County Commissioners have over 20 patients at the county hospital who are either imbeciles or mild cases of chronic mental disturbances. Ordinarily they would be sent to the State Hospital, which is now so crowded that they cannot receive them. Under the circumstances it is a puzzling question to determine their disposition.

Hospital Sold. The Soap Lake hospital, known as Siloam Sanitarium, has been purchased by a number of Seattle business men. It is to be refitted and renovated. It is well known in the Northwest as a popular institution for hot baths and similar treatment.

Prejudice Alleged. Dr. C. F. Maxwell, a negro physician of Seattle, has made a complaint against Health Commissioner Read and the Civil Service Commissioners for alleged discrimination based on race prejudice. He applied for appointment as city sanitary inspector and was refused on account of his race.

Spokane County Medical Society last month elected the following officers for the ensuing year: President, A. T. R. Cunningham; Vice-president, J. D. Windell; Secretary, F. G. Sprowl; Corresponding Secretary, E. S. Jennings; Treasurer, John Brodrecht; Board of Census, George Downs, Chas. Doland and A. A. Matthews.

New Officers of Board of Health. City Commissioner Smith, of Spokane, has been elected president of the city Board of Health and Dr. Ralph Hendricks, secretary and health officer. The city council voted that the city chemical laboratory should be merged with the city laboratory and placed under the care of the department of health.

All-Time Health Officer. The appointment of an all-time health officer for Walla Walla is under consideration. A commission, composed of representatives of the county commissioners and the city officials, will deliberate and decide plans for an official to devote all his time in the interest of these two bodies.

Member of State Board of Health. Dr. J. T. Mason, of Seattle, has been appointed a member of the State Board of Health for a term of five years, to succeed Dr. H. H. McCarthy of Spokane.

Typhoid Epidemic. A mild typhoid epidemic has recently prevailed in Wenatchee. While it has not been proven that the disease was conveyed by the water supply, a daily analysis was made of the city water and it was treated by the chlorine method.

Practically Acquitted. Last month Dr. J. R. Harvey, of Tacoma, was tried in the Federal Court for illegal issuing of prescriptions for morphine. After being out all night the jury reported a disagreement. It was learned by good authority that the jury stood eleven to one for acquittal. The doctor proved that his prescriptions were issued in the course of treating patients for the cure of morphinism.

Dr. J. S. Rowland, of Spokane, has recently been discharged from medical service and has been appointed in charge of the hospital at Center for the treatment of returned service men in need of medical attendance.

Dr. J. M. Henderson, of Seattle, recently discharged as Major from the Army, after two and a half years service, has returned home and resumed practice.

Dr. R. R. Walton, of Spokane, has located for practice at Pomeroy.

IDAHO

Barracks Converted Into Hospital. The Government barracks at Boise have been converted into a hospital which will accommodate 200 patients when properly equipped. This military hospital will care for disabled service men, particular attention being paid to those afflicted with tuberculosis. Beside this it will be utilized as a general hospital.

Compulsory Vaccination. The city council of Kellogg, passed an ordinance requiring vaccination as a condition of admission to public schools. it states that smallpox is prevalent in Shoshone county and, to prevent the spread of the disease, admission to the public and private schools of that city will be refused to all persons who have not been vaccinated.

Cooperation in Fight for Health. The State Department of Public Welfare has inaugurated a state wide campaign to urge Idaho cities and towns to enact local health ordinances based on state statutes. Some of the subjects covered by the state laws are the slaughter of animals, suppression of nuisances, enforcing of quarantine rules, proper disinfection of clothing and bedding, dairy regulations, reporting of contagious diseases and general sanitary rules.

OBITUARIES

Dr. Charles M. Buchanan, of the Tulalip Indian Agency, died at Seattle, Washington, Jan. 19, 1920, following a surgical operation for chronic sinusites. During the past fourteen years he had had several operations for this condition. He was born in Alexandria, Va., 1868. In 1890 he graduated from the Medical Department of Columbian University, Washington, D. C. Later he was Professor of Chemistry in the Washington High School. In 1894 he took the place of his uncle Dr. Edwin Buchanan, as chief of the Tulalip Indian Agency in Snohomish Co., Wash., establishing a model Indian hospital and school for the Suquamish, Swinamish, Lummi and Tulalip Indians. He was noted as a historian of the Pacific Coast Indians, having published much, aside from his government reports. Unpublished work along this line will later be completed by others. Together with Wha Cah Bub, otherwise William Shelton, he collected and transcribed into writing many of the folk tales and songs of the tribes. This was done in addition to the very busy life as physician, teacher and friend to the Indians. He was a devoted and self-sacrificing physician and one of the best friends and one of the foremost teachers of the Indians on the Pacific Coast.

Dr. A. B. MacLean, of Centralia, died January 12, 1920, following a long illness. He was born in Ontario, Canada, in 1873. He received his medical education at Toronto University. He moved to Pe Ell in 1906. Two years ago he located at Centralia. Altho he had taken out only his first citizenship papers, he served in the American Army during the war, being located for several months at Camp Lewis. On his discharge he returned to Centralia and was appointed county coroner, serving in this capacity until prevented by illness. He had a wide circle of friends and was known in all parts of Lewis County.

Dr. B. G. Love, of Seattle, was instantly killed December 30, by the discharge of a shotgun which he was said to be cleaning in his garage. He was 39 years of age. He had lived in Seattle but a short time.

REPORTS OF MEDICAL SOCIETIES

KING COUNTY MEDICAL SOCIETY

Pres. H. D. Dudley, M. D.; Sec., H. J. Knott, M. D.

The regular meeting of King County Medical Society was held at Masonic Club, Seattle, Wash., Jaunary 5, 1920. The minutes of the last meeting were read and approved.

Report of the Board of Trustees for the past year was read by the secretary; report of the program Committee by Dr. M. F. Dwyer; report of the Committee on Legislation by Dr. F. S. Bourns; report of Credit Bureau Committee by the secretary; report of the Public Press and Public Information Committee by Dr. C. A. Smith; all the reports were adopted and placed on file.

Report of the Industrial Service Bureau Committee was read which recommended abolishment of the Bureau as not profitable. It was voted that the report be referred to the Board of Trustees for investigation and report at the next meeting.

Report of the secretary was read; report of the University Extension Committee was read by Dr. R. J. O'Shea. These were adopted and placed on file.

Election of officers for the ensuing year resulted as follows: President, H. D. Dudley; Vice-president, H. E. Coe; Secretary-Treasurer; H. J. Knott; Trustees, R. M. Stith and F. T. Maxson; Delegates to State Medical Association, D. C. Hall, C. W. Sharples, G. W. Swift, A. O. Loe, G. T. Dowling, F. M. Carroll, H. E. Allen and H. C. Ostrom.

The second regular meeting of the Society was held January 19, at 8:15 P. M. Minutes of previous meeting were read and approved.

Clinical Cases

L. B. Baldwin showed a case of malaria of more than two years standing, treated by 606 after resisting quinine treatment for a period of two years.

P. C. West discussed the case. D. M. Stone spoke of Fowler's solution as being useful in these cases. J. M. Blackford recommended quinine as the reliable old line treatment.

H. J. Davidson gave a history of the following cases: (1) Obstruction of intestines with symptoms in lower abdomen of bloating, tenderness and tympanitis. Operation showed adhesions around cecum and appendix and kinking of small bowel with small amount of pus found in appendix. (2) This case showed a kinking of small intestine in old hernial sac.

Dr. Davidson also exhibited a case of old empyema operated on for perforated gastric ulcer, due to extension of infection into upper abdomen. Second operation was decortication of lung, involving resection of ribs and dissection of membrane from lung surfaces.

In discussion J. T. Mason spoke of operation without removal of ribs by using the rib spreader.

Paper

Cancer of Lip. Dr. J. T. Mason. He described block dissection of glands of neck, using Percy cautery on parts likely to recur.

In discussion Arthur Jordan recommended radium as specially useful for post-operative treatment.

C. H. Thompson advocated electro-thermic needle and x-ray as well as radium and the knife as the ligical treatment. He said by proper treatment the x-ray will get the same results as radium with much less expense to the patient.

On motion of P. V. VonPhul the recommendation of the Board of Trustees was adopted to continue the Industrial Insurance Bureau.

C. R. Castlen, W. G. Cassels and R. L. Sweet were elected to membership.

PIERCE COUNTY MEDICAL SOCIETY

Pres., H. G. Willard, MD; Sec., W. B. Penney, MD.

The By-laws of the society have been changed to read as follows:

The annual dues shall be $15.00 for all members living in Tacoma; $6.00 for members living outside of Tacoma, and shall be payable on Jan. 1 of each year, and, if not paid before the 1st of March following, the members shall be held as suspended in this society, and in the State Association, and his name shall be placed on the list of non-affiliating physicians in the report to the State Association for that year, and shall so remain until such disability is removed. Members elected on or after July of each year, however, shall pay one half the annual dues.

The president has appointed the following comtees for the coming year, the first named acting as chairman.

Program, Drs. Whitacre, Chas. McCreery, Hards, Munro, Crowe.

Legislative, Drs. Karshner, Wheeler, J. B. McNerthney, Nace, James.

Publicity, Drs. Swearingen, Read, Engels, Foreman, Kane.

Public Health Sanitation, Drs. Wilson, Layton, Harrison, A. Reynolds, Ludlow.

Membership, Drs. Kinnear, W. W. Pascoe, Carlson, Rhea, Berry.

Library, Drs. Steagall, Schaffer, Staatz.

The following are the changes in fee bill recommended and accepted by the society.

1. Day calls within city limits, fee to be determined by the distance and nature of services. Minimum, $3.00 and up. Night calls received and answered between hours of 9:00 P. M. and 7:00 A. M. double the day rate. Calls outside city limits for each additional mile $1.00.

2. Office services. Consultations, $2.00. Physical examinations $2.00 to $5.00. Night services double the day rate.

3. Telephone consultations. Minimum $1.50 With prescription, $2.00.

4. Laboratory work according to services rendered.

5. Emergency calls only made during office hours, $5.00 to $10.00.

GRAYS HARBOR COUNTY MEDICAL SOCIETY

Pres. J. F. MacDonald, MD; Sec. A. E. Anderson, MD

The first regular meeting of the year of Grays Harbor County Medical Society was held January 7, 1920, in the Medical Building, Hoquiam, Washington.

The following officers were elected for the ensuing year: President, Dr. J. F. MacDonald, Hoquiam; Vice-president, Dr. H. C. Randolph, Aberdeen; Secretary and Treasurer, Dr. A. E. Anderson, Hoquiam.

Interest in the meetings of the society is increasing and a year of renewed activity is anticipated. Efforts will be made to have some of the best known members of the profession on the coast present papers or give talks.

The next meeting will be held on February 4, at the offices of Drs. Randolph, Kinne and Austin, Aberdeen.

Skagit County Medical Society at its annual meeting January 9, elected the following officers for the ensuing year: President, Dr. George Shorkley, Mt. Vernon; Vice-president, Dr. H. D. Brown, Mt. Vernon; Secretary-Treasurer, Dr. Austin Shaw, Anacortes.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

The Future of Medicine. By Sir James Mackensie F. R. S., F. C. P., L. L. D. F. R. C. P. L. (Hon.) Consulting Physician to the London Hospital. Cloth, 238 pp. Oxford University Press, London and New York, 1919.

This book is of absorbing interest and illustrates the processes of an acute and highly imaginative, constructive mind, combined with close clinical observation, in which the collected facts were constantly noted and correlated and the most instructive inductions drawn therefrom. The writer shows how medicine must progress thru actual observations of the general practitioner and surgeon who may advance medicine in this way more even than the highly technical laboratory experimentalist. Mackensie's observations and deductions of pain have the greatest practical value. He doubts that the so-called tender gall-bladder, appendix and ovary are due to the effect of pressure upon the inflamed organ but believes that the tenderness and pain in the abdominal wall are due to referred hyperesthesia (motor and sensory) in the wall which gives rise to local zones of increased sensibility and muscle spasm.

He notes that many distinguished practitioners have been misled by hardening of the abdominal muscles in circumscribed areas, due to inflammation of the appendix and other visceral organs, into diagnosing intra-abdominal tumors—an occurrence that has come notably to the notice of the reviewer, where such lamentable mistakes have been made. The book touches on many pathologic conditions—especially relating to the heart—and all show the marvelous results that one may attain thru intelligent interpretation of purely clinical phenomena. The writer illustrates the reverse attitude of the noted clinician who ignores wholly the suposedly ignorant and untrustworthy testimony of the patient in view of the physical findings and appearances, as in the case of a distinguished dermatologist who was exhibiting cases of poisoning by a much advertised soap and, when the patient said he had never used such a preparation, the professor turns to his class and says, "Gentlemen, this is a perfect example of poisoning by cuticura soap." The book is of highest value from its intrinsic worth and even more as a guide to self medical education.

WINSLOW.

A Manual of Hygiene and Sanitation. By Seneca Egbert, A. M., M. D., Professor of Hygiene, University of Pennsylvania, etc. Illustrated, Cloth, 554 pp. Price, $3.00. Lea and Febiger, Philadelphia and New York, 1919.

This well known work, as the name suggests, is not a comprehensive treatise like that of Harrington and Richardson but a condensed hand book epitomizing the subject in convenient, if abbreviated form. In the present volume new matter is especially to be found in the chapters dealing with sewage disposal, industrial and military hygiene. In military hygiene some of the experiences and lessons of the recent great war have been utilized, to point a moral and adorn a tale. It would have been well, if emphasis had been laid upon the results of overcrowding in barracks, and the necessity of housing men in tents or huts to limit the dangers of intimate association. Also, in the matter of inoculation with typhoid vaccine, the dangers of lighting up an existing infection might have been touched upon, as was seen in the numerous cases of appendicitis, mastoid infections or middle ear disease salpingitis in nurses, and especially the danger of increasing the general susceptibility to current infections during the negative phase. This last was notable during epidemics of stretococci infections of the respiratory tract in camps and could have been greatly avoided by permitting the inoculated to rest indoors for a short time following the use of the vaccine. The book forms an excellent synopsis of the subject.

WINSLOW.

Venereal Diseases. A Practical Handbook for Students. By C. H. Browning, M. D., D. P. H. Director of the Bland-Sutton Institute of Pathology, Middlesex Hospital, and by David Watson, M. B., C. M., Lecturer on Venereal Diseases, Glasgow University, etc. Introduction by Sir John Bland-Sutton, F. R. C. S. Cloth, 336 pp. Price, $6.50. Oxford University Press, London and New York, 1919.

This is a very practical treatise describing both venereal diseases and the various systemic effects of the same, including syphilis of the nervous system. The illustrations are numerous with many photographic half tones and colored plates of skin lesions. All the directions for making tests or performing such minor operations, as spinal puncture or intravenous injections of salvarsan, are very explicit and plainly set forth. The writers warn against allowing patients to walk about after spinal puncture, lest loss of spinal fluid into the tissues cause headache, pain in the back or even collapse. The tone of the book reflects actual methods employed in a clinic rather than a dissertation derived from the study of the literature of the subject and has the advantages of being direct and to the point. It also mirrors the English practice, which differs in some respects from our own, and gives the reader a broader viewpoint. A most admirable condensed text-book for students.

WINSLOW.

The Oxford Medicine. Volume 1, Part IV, Oxford University. Advanced Pages. Edited by Henry A. Christian and Sir James Mackensie. In this part there are five articles all of the highest professional value and literary perfection. Oxford University Press, London and New York.

The mechanism of bodily resistance to disease, by Frederick P. Gay, is the first in which the complicated subject of antibodies and immunity is stated in the simplest terms and according to the latest scientific interpretation. A monograph which any practitioner may read with profit and enjoyment in its clarity and comprehensiveness of demonstration. Cabot, in his article on Medical Social Service, desires to enlarge the usefulness of medicine by injecting into it the use of lay social workers to collect facts in the life of patients coming to out-patients, by gathering information concerning the habits, temperament and mode of existence of patients, of value in diagnosis and treatment of children and in care of neurologic and medical cases.

Walter B. James, in his Environment in Health and Disease, provides a most humorous and refreshingly original discussion, in which he affirms that an average man's clothing will easily fill a bushel basket, while his slender, frail-looking daughter could almost put hers into a quart cup, yet it is she who is wholly independent of her pocket handkerchief, while he is an abject slave to one containing about a yard of cloth. And, again, that all the disagreeable nose and throat noises in the household are made by the men and not by the women. He describes the woman discarding most of her clothes, going to a draughty dining room, and then to a heated dance hall, getting very warm, sitting more or less nude afterward, to cool, and coming up smiling and robust the next day to her husband's amazement. He advocates in this way training the vaso-motor system to rapid and violent changes in temperature, and regards women's relation to environment as much more normal than that of men. The article is extremely suggestive in showing what marked influence on the body has environment, position, temperature, and mental conditions, and how the same may be applied to the cure of diseases.

Radiations and Their Effects is a very technical article by W. T. Bowie on the physics, actions and principles of the various rays, and their use in therapeutics. Acidosis, by Lawrence J. Henderson, is a very scientific but practical paper, in which the writer discusses the complicated chemical and physiologic reactions involved, and also the practical tests and treatment for the condition. The urine is an approximate measure of acidosis, except in nephritis, and 5 or 10 grams of sodium bicarbonate produce an alkaline urine in normal individuals. If more than 10 grams are retained a condition of acidosis exists. In other words, if more than 10 grams are required to alkalize the urine, or make it of the same alkalinity as blood, i. e., an amphoteric reaction to litmus, which renders the urine not so alkaline as to injure the kidneys. The work will be the highest authority and will be supplemented by a quarterly to keep it up to date.

WINSLOW.

Milk. By Paul G. Heineman, Ph. D., Director of the Laboratories of the United States Standard Serum Company, Woodworth, Wisconsin. Octavo of 684 pages with 237 illustrations. Philadelphia and London: W. B. Saunders Company, 1919. Cloth, $6.00 net.

This is one of the best condensed treatises on the subject and there is a splendid bibliography appended at the end of each chapter. The writer takes up the usual subjects, including chemistry,

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adulterants, enzymes, toxins, and antibodies in milk, microorganisms, bacteriologic of milk, control of milk supplies, the economic aspect of milk production, milk in relation to infant feeding and butter, cheese, ice cream, condensed and dessicated milks, with milk from other mammals. In respect to the bacteriology of milk the matter is not extensive but as much so as could be expected in a work covering so much ground. The author does not express himself in regard to some matters that have great practical value but are open to controversy. Thus the respective merits of pasteurized and certified milk and of the best methods of preparing market milk are of paramount importance. It has been shown that certified milk is often far from safe in that tuberculosis animals have been introduced into herds supposed to be unquestionable, as occurred in one of the largest and most celebrated herds in the country, where over one-third of the animals were thus affected a few years ago. The same unfortunate happening came to light here some years ago. The author's long teaching and laboratory experience at the University of Chicago, in connection with the sanitary aspects of milk supplies, and his own well known contributions to the subject have enabled him to write a clear, authoritative and condensed text-book which is complete, altho not exhaustive or exhausting. It is one of the best if not the best work on milk.

WINSLOW.

The Medical Clinics of North America. Volume III Number 1. (The Chicago Number, July, 1919). Octavo of 277 pages, 59 illustrations. Philadelphia and London: W. B. Saunders Company, 1919. Published Bi-Monthly; Price, per year: Paper, $10.00; Cloth, $14.00.

In this number, are many noteworthy clinical lectures. Cases discussed include Hanot's cirrhosis in a two year old child, mediastinal tumor, cancer of the stomach, radiographic differential diagnosis of bone affections in chilhood; acute pyelitis simulating intestinal obstruction, carcinoma of the esophagus treated with radium and many others. Hamill presents and discusses two very interesting cases. One embraces the differentiation of lues from encephalitis lethargica, and the other discusses ophthalmoplegia arising from a suppurative ethmoiditis. In following the luetic case it will be seen that at times it will be impossible to exclude syphilis wholly from encephalitis, and it is not at all improbable that the two occur synchronously at times. He shows that symptoms suggesting encephalitis occur in focal infections about the head, that in fact there is in all probability an inflammatory condition with round-cell infiltration existing in the brain substance in such cases. While he does not go into the differential diagnosis of encephalitis with such cases in mind, yet, in the experience of the reviewer, one sees just such cases which are diagnosed as epidemic lethargic encephalitis and yet which rapidly recover on the removal of focal infections.

These publications come nearer than any others to that most desirable of all clinical instruction which one gets by the actual beside from the masters of medicine.

WINSLOW.

Miscellaneous Nostrums. Prepared and issued by the Propaganda Department of the Journal of the American Medical Association, 140 pp., Price $2.00. 535 N. Dearborn St., Chicago, 1919.

This pamphlet is a part of the Propaganda Department of the American Medical Association in its work in giving the public the facts regarding the nostrum evil and quakery. Nothing could give the public such an insight into the subterfuges and deceits of patient medicines as the reading of this pamphlet. If it were to be found on the tables in all physicians waiting rooms, the public would be enlightened along these lines in a very striking manner. The absurdity in the composition and claims of so many well known household remedies are herein exposed, such as hyomei, mentholatum, Duffy's Malt whiskey, nuxated iron, musterole, peruna, sarsaparilla, Winslow's soothing syrup and others too numerous to mention. It is a great eye opener to the uninitiated.

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ORIGINAL CONTRIBUTIONS

A DISCOURSE ON THE PRINCIPLES OF HEALING.*

J. D. WINDELL, M.D.
SPOKANE, WASH.

A discourse on the principles of healing involves a discussion of the various psychotherapeutic systems or schools of healing, such as Christian Science, New Thought, Divine Healing, etc., as well as a discussion of the orthodox system or school of healing.

The word "healing" implies the existence of disease or something that must be healed. What is disease? Disease is an abnormal state of the organism induced by some accident, and all accidents are due to ignorance of our environment. Thru ignorance you allow a tree to fall on you. Thru ignorance you come in contact with virulent pathogenic organisms. Thru ignorance you meet with adversity in general. Disease is, therefore, a result of inability to adapt oneself to environmental conditions and changes, over which one has no control and about which he has limited knowledge.

"Health is a continuous and harmonious adjustment of internal relations with external relations." Any adequate conception of health and disease includes a conception of a living, sentient, reacting individual and a real environment.

To deny the existence of a physical or phenomenal world is to deny the existence of everything but self. This is solipsism pure and simple and, according to it, there exists no other personalities, carnate or discarnate. Conceive, if you can, the state of one lone living unit or entity in indefinite space or nothingness. How would it manifest its life or existence?

If a physical or phenomenal universe it not essential to systems of faith and religion, it is essential to the world of physical science, and physical science is necessary to civilization and for the extenuation of the struggle for existence. Eliminate science and all it has accomplished and man will be reduced to his primitive or pristine state, without clothing, weapons, implements, means of rapid transportation or communication.

Eliminate the various systems of faith and religion and conceive, if you can, such utter destitution. Science is orthodox, in that all who study it are convinced and agree on the great essential truths of science. There is no orthodox religion. Whether the fundamental basis of the universe is materialistic or spiritualistic matters not for the present discussion. Discussion of that problem at the present time is profitable only as an intellectual exercise. Science is extending its field so as to more and more engage the full complement of human activity until the race is now so occupied with industrial pursuits, the natural outgrowth of science and its ramifications, that there is no time left for the development of new poets and other professional dreamers.

Let us resume the discussion of disease. There is no way out of this life but by disease, and the faith healers and psychotherapeutists make their exit by the same path as the skeptic. Old age is a disease, the cumulative resultant of innumerable knocks from an hostile environment.

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*Read before the Thirtieth Annual Meeting of Washington State Medical Association, Spokane, Wash., Sept. 11-13, 1919.

From the moment of birth until death every individual is dying, and, when he is dead, he has ceased dying just as truly as he has ceased living. Death and dying are attributes as fundamental to the human being as are birth and living. Some organs that are essential to the organism in the early days of its existence begin at the moment of birth to waste and disappear. The lens of the eye continuously from the moment of birth loses its elasticity and increases in density, and the majority, no matter what may be their faith or how strong may be their will, have to don glasses as they advance in years.

A similar cycle is followed by all living organisms, viz, birth, growth and development, until the phase of maximum efficiency is reached, then degeneration, decline, death and disintegration. "In the majority of the tissues and organs, there are simultaneous signs of both increasing functional efficiency and structural degeneration."

The next phase of the subject is the question of psychophysical interaction. What mind is in is essence we do not know. Whether it is a phenomenon of certain material aggregates, or an entity existing independently of matter, which it uses only as a medium thru which to manifest itself, has not yet been proven. We do not know.

The same may be predicated about life. That discarnate minds or personalities continue to exert an influence in the world of nature there is no evidence that has yet withstood the light of cold, critical investigation.

Consciousness is indefinable. You cannot perceive, examine in detail and define consciousness that exists apart from yourself. You cannot project your own consciousness on the screen for auto-examination. That would be objectifying the subjective.

By their manifestation we recognize two kinds of consciousness, viz, "the plastic and the fixed or immobile, corresponding to two kinds of attention, viz, voluntary or artificial attention and involuntary attention. Voluntary or artificial attention is the product of education and training. It is directed by extrinsic force, it is the result of deliberation and is accompanied by some feeling of effort."

Voluntary attention is the growing point of mind. It is dormant in dreams, hence is incompatible with inspiration. Intricate movements are so mastered by repeated trials under close voluntary attention as to become in time automatic. This is mental growth and it always takes place in the plastic phase of consciousness and thru voluntary attention, the growing point of mind.

The fixed or immobile consciousness is the subjective consciousness of popular parlance, and is built up of conscious processes that have become automatic thru frequent repetition under voluntary attention.

Subconsciousness is, then, not an embryonic state of consciousness capable of definite possibilities and expansion. "It is a static condensation of a dynamic activity." Its limitations are always defined by plastic consciousness. This is shown by the study of dreams, the paramount manifestations of pure subconscious activity. Dreams are not new creations but are changing processions of imagery, the elements of which are acquired thru voluntary mental operations in the past.

All dream content can, upon careful scrutiny and analysis, be shown to be mnemonic productions. Dreams are hallucinations; hallucinations and illusions are the progeny of mental or conscious operations enacted under the guidance of involuntary attention and are, therefore, manifestations of subconscious activity. "Another characteristic of dream consciousness is its failure to fix the final results"; that is, the dreamer has not in view an objective which it is his determination to attain by a logical route.

There is no aim, direction or objective in subconscious operations. The subconscious responds in a purposeful way to sensory and emotional stimuli at times. It is not aroused by the will directly, but only thru the avenues of the senses and the emotions. "Dreams are but theories or explanations of sensations and emotions from various parts of the organism that assail sleeping consciousness without revealing to it their origin."

From the foregoing it is clear that the will can effect the subconscious only thru the intermediary of the memory, the imagination and the emotions. Hence thinking health and willing health do not always insure health.

Monoideism has a tendency to lead to mental and physical degeneration, no matter what the theme may be. Thinking health intermittently, when it eventually leads to a conviction that there is no danger, results in a forgetting of self and therefore a healthier state.

I am always thinking disease, yet I am as healthy as anyone. I am, however, forgetting myself while thinking of the other fellow's malady, or while thinking of disease in the abstract. The important thing, then, is not thinking health but forgetting self.

To restore equilibrium and coordination in the organism thru mental effort, the patient must be able to recall in every detail in imagination the sensations and emotions that accompany normal functioning of the defective tissue or organ. There are people who have the power, to a very limited degree, thru memory, imagination and emotion, to stimulate or inhibit functioning of involuntary organs. Some can contract and dilate their pupils at will; some accelerate their heart's action at will; some raise their blood pressure at will; etc. I can see the possibility of this power over all the involuntary organs being acquired by all individuals, but I fail to see how they could, at the same time, accomplish anything else.

This living on and by emotions is detrimental to intellectual growth as well stated in the following quotation: "Modern, intellectual and moral education produces an increased capacity for converting emotional stimuli into controlled reactions. They engender habits of self-possession. The more reflective and attentive the less emotional, emotions absorb attention, arrest the stream of thought, and thus for the moment limit the intellectual range."

Such a person as lives on and by the emotions would not have time to entertain a thought except of self. Our ancestors, in a direct line from the ameba up, possess this power in a diminishing rato. By the law of phylogeny we inherit this latent faculty. To cultivate this latent faculty would enhance and develop our recuperative powers very much but at the expense of our power to prevent disease. It would not be evolution or progression, but reversion or retrogression. The newt can regenerate an amputated limb; the crayfish, an enucleated eye.

This primary power of repair fades as the scale of evolution is ascended, but the higher organisms are compensated for this loss by a growing knowledge of the natural world, which enables them, in a large degree, to prevent disease by evading environmental causes. The individual possessing this control of the involuntary functions is least fitted to survive.

There are bodily states that are absolutely beyond the influence of faith or suggestion. Destruction of the bundle of His in the heart renders its ventricles independent of mental, emotional or spiritual states. The perfecting of our adaptability to an environment ever changing and growing in complexity is accomplished at the expense of the organism. Increasing range and virility of thought do not give us a fuller and wider control over the vegetative and nutritive functions of the body.

Destroy in an adult human brain a center of specific activity, e. g., a center for a certain category of memories such as the memory of things seen, and by no power on earth can it be restored; such a patient may look at an object, say a watch, see it plainly, yet not be able to name it or describe its uses. Let him touch the watch or hear it tick, and he will immediately recognize it. Destroy such a center in the almost indifferent brain of an infant, and its functions will be vicariously assumed and performed by some other part of the infant's brain. Now the infant has neither the virility of thought, the range or intensity of imagination nor the suggestibility of an adult.

Behind that recovery there is something that is neither suggestion nor faith. There is a peculiar physical condition, a structural peculiarity of tissue. The tissue is in a youthful plastic state. This is the period when nervous tissues are impressionable, when indelible memories are readily formed.

With the aged the case is different. Here the individual may possess the knowledge he has acquired and all his mental faculties intact with the exception of his ability to form new memories. He can remember the events of his remote past vividly and discourse rationally on them. He can be convinced that his memory for recent events has absolutely failed. He often imagines that his thoughts of a few moments ago were real occurrences. Yet there it no faith, power, prayer or process by which his memory may be restored. How explain the difficulty, when a never tiring, never changing, never dying, almost omnipotent spirit is operating in an aged body without a tissue element lacking. Only one explanation. There is an irreparable physical rearrangement of the structural elements. Where such a memory loss is caused not by destruction of a cerebral center, but by a compression by a tumor, say an endothelioma, there is no process by which it may be restored except by surgery.

A happy, hopeful psychic state is not all that is essential for the maintenance of good health. By repeated small draughts of whiskey, a person may be kept in the ideal psychic state of the psychotherapeutist, yet he will be, more rapidly than usual, degenerating physically.

For another example, take a case of general paresis. In such a case the patient is happy and hopeful to a superlative degree. He has no disappointments, no reverses. Life is one continuous series of successes. If he is a worshipper of the Deity, his efforts and his sincerity of faith cannot be surpassed. He believes that all his prayers will be favorably answered. With all these psychic and spiritual advantages he is surely going to a premature death as a result of his absolutely incurable disease. Why? Because the agency exciting this ideal psychic and spiritual condition is concurrently undermining it by progressive destruction of tissue.

Other examples are some cases of dementia precox. In these cases memory and perception remain unimpaired, desire is normal, will is not paralyzed. Yet the individual's acts are insane, and the advanced case is incurable. Will and desire are divorced or dissociated, so that voluntary acts are often diametrically opposed to the patient's desire and judgment; which desire and judgment and ability to reason remain normal. In such cases suggestion, faith and prayer are absolutely futile.

How does faith cure? On what must a curative faith be based? Faith, no matter what be its basis, when it is so strong as to result in a conviction that there is no disease or danger, removes a fear, a mental and emotional strain, and distracts the individual's attention from self, disrupts a monopsychic state and thus puts him in a more favorable condition for curative nature to work.

Introspection in its ultimate analysis is shown to be the quintessence of selfishness, hence selfishness may be a prolific cause of disease. Forget self by engaging in philanthropic pursuits, and you will do much to foster your own health. We are told that if we have faith enough all things will come to us. This is an absurd and idle statement. This conditional "if" may be predicated about anything.

There never was penned a truer maxim or axiom than

"Our hearts, tho stout and brave,
Still like muffled drums are beating
Funeral marches to the grave."

Instances where surgery is the only effective measure possible are innumerable. This the psychotherapeutists are obliged to admit.

Orthodox medicine recognizes the place and utility of surgery, but does not regard it as the ideal in therapy. It is often the best remedy we have; but the ultimate aim in orthodox medicine is to obviate the necessity for surgery. The same aim directs our attitude toward drug therapy. Our greatest energies and activities are directed toward preventive medicine.

The psychotherapeutist ignores prevention in his zeal to cure disease. Eliminate all the hygiene and preventative medicine the orthodox school has given the world and the psychotherapeutist will suffer with the rest of mankind. By their course the battle with disease will never end. By our course we have in prospect an end to our struggle with disease. When our knowledge of nature and our environment is complete and full, there will be no more disease, since all pathogenic factors will be under control.

Human beings attain their maximum efficiency when in perfect health. Since there is no complete recovery from disease, preventative medicine is the ideal.

Psychotherapeutists are constantly reminding us of their wonderful future, when the faith they now lack, but which is assured them, shall be given unto them. When that time comes, it is probable that we may be omniscient and will have transcended the realms of faith.

One fundamental dictum of the psychotherapeutists is that thought, belief or faith is operative for good or evil according to the good or bad quality of that thought, belief or faith, without its being specifically aimed at any one. If this be so, then they are impotent to hasten or retard the cure of disease, since the vast preponderance of the world's thought is against them.

The faithful tremble with fear when, unprepared with adequate defensive weapons, they meet a hungry, irate lion, a boa constrictor or a cobra. These kill by different methods. They feign courage when the death dealing agency is not a lion but an invisible microscopic organism, viz, the tetanus bacillus which elaborates a soluble poison forty-five one-thousandth of a drop of which will kill a horse. These organisms, when properly introduced into a human being not immunized by tetanus antitoxin, will cause dissolution of soul and body, just as surely and with as much contempt for prayer and faith as will a hungry, irate lion.

There could be no gunshot wounds without guns and amunition; no morphinism without morphine; no diphtheria without diphtheria germs. There are real pathogenic factors existing outside the human organism that will cause disease and death, unless contact with them be surely avoided. To deny this is to display a hopeless state of ignorance. These same individuals do not deny the revelations of the telescope and the spectroscope, nor the predictions made by the aid of these accessories, but they have a supreme contempt for the microscope and chemistry which bear to the molecular world the same relation as the telescope and the spectroscope and the sensitive plate do to the planetary world.

It is a significant fact that those who are so near the source of all knowledge and are constantly in communication with the omniscient are seldom guilty of any of the scientific innovations so useful to mankind and which they condescend to utilize and enjoy. Here as well as elsewhere the law of compensation operates. Their tongues are loosened in proportion to their paresis of perception and ideation.

I shall cite a few specific instances of the power of mind thru the emotions on the state of the body. Delboeuf states that a friend of his experienced a dream so terrible in its emotional strain that, on awakening, his black hair had turned white. Extreme exhaustion is often felt on awakening from a highly emotional dream. It has been found that certain hysterical subjects of old standing, when in a hypnotic state, are able to receive mental pictures of their own viscera, even tho they be quite ignorant of the shape and location of these viscera.

The ease with which musical sounds can be applied during sleep and the beneficial results on the emotional tone that have resulted from their therapeutic use. Bowel peristalsis has been stimulated and inhibited psychically. One eye has been caused to shed tears whilst the other remained dry. Perspiration has been controlled. Secretion of milk has been modified. Range of vision, both distant and near, have been increased in young subjects with normal vision, one subject reading letters 1:250th of an inch high. Notice that this happened in young subjects. In an older subject, in whom the lens of the eye has lost its elasticity, this cannot be done.

Hearing has been rendered more acute. Smell in hypnotic subjects has been rendered so acute that a subject, smelling a glove, could afterwards recognize the glove's owner by the sense of smell. Cutaneous, sensibility, appetite and thirst all have been modified. The verified memory experiments in the hypnotic and post hypnotic states are marvellous. How these things are effected has been explained.

That the faith healers and psychotherapeutists in general cannot and never have cured diseases as cancer, sarcoma, leprosy, pernicious anemia and other essential blood diseases, brain abscesses, nerve center degenerations, and a host of other incurable diseases, is capable proof. We, as physicians, can today repeat our past achievements with improvements. Tomorrow we will be able to repeat them with important additions. We are progressing continuously and uniformly in a linear direction.

If the faith healers and psychotherapeutists in general will submit to cold, careful, scientific scrutiny their future attempts to cure the above mentioned diseases, they will find their failures to be one hundred per cent. If they cannot cure them today, they never did cure them, because they try to assure us that they are growing more efficient every day. If they cannot cure today what they did in the past, they are progressing in the wrong direction. They refuse to debate. They know without the peradventure of a doubt that they have the truth. If so, what could they gain by debate. A selfish and unphilanthropic attitude, having a tendency to sunder the bonds of society.

I shall now enumerate some of the things for which the world owes a debt of gratitude to the orthodox medical profession. One is sanitation and sanitary science. Let the faith healers isolate themselves into communities and ignore this lesson and they will soon dwindle to a negligible quantity. The introduction of antiseptics, and the almost total obliteration of the blood poisoning of the preantiseptic days. The discovery of anesthetics. The development of surgery. The discovery of specific remedies for many diseases.

The only men who would volunteer to, and were capable of making the canal zone, at one time the most unhygienic place in the world, the most salubrious with the smallest death rate of any of Uncle Sam's possessions. This was accomplished not by fortifying the inner man by prayer and faith, but by operating on the environment. The discovery of the cause of malaria and the means of its eradication. The only ones with the courage and with the proper armamentarium to attack the investigation of the yellow fever, bubonic plague, Asiastic cholera, sleeping sickness and the Peruvian tic fever. Can you cite one instance where the faith healers have sent their missionaries as pioneers into these disease infected regions for the purpose of making them more habitable? Not one.

The men who volunteered their services in the recent great war. Picture to yourself the utter helplessness of the faith healers in such a setting.

The discovery of preventive remedies against devastating epidemics, amongst stock. The prevention of typhoid fever in the army.

In 1910, there were 198 cases of typhoid fever in the army; in 1912, there were 27 cases. In 1910, there were not quite 12,000 out of an army of 81,000 who had received the prescribed three doses in the procedure of vaccination against typhoid fever. At the end of 1911, all but 10,000 out of an army of 22,000 had been vaccinated. Out of 27 cases of typhoid reported as occurring in the army during 1912, 19 of these were in the persons of soldiers who had not been vaccinated against typhoid. Of the eight remaining patients who had been vaccinated, all recovered. In 1913, four cases; and in 1914, seven cases of typhoid were reported. In only two cases out of the eleven cases reported had the complete course of vaccine been administered. It is to be observed that, during the years 1913 and 1914, the main strength of the army was between 90,000 and 93,000. This improvement in results is not due to improvement in sanitation in the camps, as there has been practically no change made during the period covered by these dates, and the soldier's immunity against disease is confined to typhoid and small pox, for he contracts diseases such as mumps, measles, scarlet fever, influenza and others just as he did before. Vaccination against typhoid fever and small pox are measures now in use in the armies of Great Britain, France, Germany, Russia and Italy.

Similar paragraphs might be written about the lowered incidence of tetanus, Asiatic cholera, bubonic plague and yellow fever, as the result of medical interference and effort.

What significance has the fact that agnostics and unitarians live as long, live as happily and are as immune to disease and recover from it as rapidly as the faith healers?

A REVIEW OF THE MILITARY UROLOGIC SERVICE.*

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It is my purpose to give to you a few of my experiences in the treatment of venereal disease, covering a two years service, starting with the drafted recruit, the base hospital of a National cantonment, the S. O. S area in France, and the base hospitals fed by the army of the advance section. With such a division, (1) base hospitals in the U. S. A., (2) base hospitals in France, and (3) field work in France, a number of interesting facts develop which I will briefly mention.

1. The great army camps in the United States, with the men rapidly pouring in from civil life, gave us the greatest problem of all, the greatest amount of work. It was a weeding out process, of cleaning up old chronic cases, differential diagnosis between venereal and non-venereal urologic conditions, of getting these men into such a condition that they could enter the Expeditionary Forces free of all venereal disease. At the end of six months these hospitals were pretty well equipped with laboratories and urologic departments.

It was here the best work was done, near the source of supplies and manned by urologists who had just left their city practices and hospital service. Each brought to the service the best methods he knew and, coming from all sections of the country, there was a most healthy intermingling of ideas on treatment and diagnosis. It was a real clinic with specialists of every line constantly at one's call. These patients we could absolutely control and give them treatments to our heart's content, regardless of time, cost of medicines or hospital bills. Here the most scientific and thoro treatment was possible, with a staff large enough for a subdivision into dermatology, syphilis, acute urethral treatment, chronic urethral treatment, and urology of the bladder and upper urinary tract, including renal functional tests of many conditions.

2. Once overseas 95 per cent. of the genitourinary service consisted of acute or new infections. In the early days of the war the American forces endeavored to avoid the high venereal rate of the British Overseas Army. To keep this rate low Americans were largely confined to American camps, and prophylaxis most rigidly applied.

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*Read before Portland City and County Medical Society, Portland, Ore., Oct. 1, 1919.

While the combat was most active few leaves or passes were granted, and as the soldiers completed their training they were rushed up into the advance zone, where women were comparatively few.

With the signing of the armistice Nov. 11, 1918, conditions changed somewhat. Everything was done by the A. E. F. officials to make more bearable the long months of waiting ahead until the final signing of the peace treaty, prominent being the leave areas which included most parts of France, Belgium, Italy and England. These were for both education and entertainment. Transportation, room and board in the best of hotels were furnished by our government. These breaks did a world of good. However, it gave many an opportunity to expose themselves venereally. Not unnaturally there were many cases contracted in Paris, Nice, Lyons, etc. These cases were all picked up early, and were new infections easily handled with very little loss in days of service.

3. In the advanced zones, where the men were billeted in villages and towns, a few cases developed, but well towards the front, where all the soldiers were intensely occupied, with no leaves and few civilians, venereal disease was rare and the division urologist had little to do.

4. In the Base and Intermediate Sectors, where a long residence in one city or village gave the soldier a wide acquaintance, venereal disease was more common, due to greater liberty and a knowledge of the French language.

This in a general way sums up the venereal disease situation, or venereal geography.

TREATMENT.

My experience and observation has been that by far the most successful urologists were those who combined gentleness with manual carefulness, always on guard to avoid local urethral irritation. For example, an acute, indurated urethritis should not be further injured with injections or irrigations, nor should a sloughing ulcer of the foreskin be increased in size and severity by the cautery, a suppurative bubo invariably resulting. Over treatment is to be guarded against, diminishing the number and frequency of treatments as rapidly as possible, remembering the unaided, recuperative bacteria-resisting properties of the urethra. It calls for constant watchfulness and fine judgment, not the blind following of a cast iron formula of treatment.

A careful history is always of great value, and I need not mention the absolute necessity of a laboratory-controlled diagnosis at all times, especially the repetition of the Wassermann test, repeated search for the spirochete and three or more negative slides for the gonococcus. Even then the best will at times be mislead, but will make fewer mistakes and also avoid the unnecessary spread of these infections.

Acute Gonorrhea. The army treatment has been largely one of the injection method in the early stage, usually protargol from ⅛ per cent. to 2 per cent. solution, supplemented with irrigations in the subacute and chronic stages. Protargol was very efficient if not used in too strong a solution at the start. Argyrol, silver nucleinate or proteinate also was employed, but did not give as rapid results as protargol. Acriflavine, a coal tar dye, was employed at U. S. Hospital No. 9 in Paris with good results. We tried it out at Blois, at the Casual Depot, but did not find it any more rapid or give more permanent results than protargol. It was difficult to obtain and certainly was not a panacea or a short cut for gonorrhea. The most rapid results were obtained by taking the soldier off duty and placing him in quarters or hospital; this also lessened complications. In acute new gonorrhea few irrigations were used, and sounds very seldom as a final test of cure. Let well enough alone.

In chronic gonorrhea irrigations of permangante of potassium, 1:6000, or solution of silver nitrate, 1:10,000 and up, were most successful with dilation of the urethra and frequent prostatic massage. These naturally were long protracted cases requiring patience and perserverance.

Gonorrheal stricture was most interesting. A number came in with complete obstruction and retention of urine. Not one such stricture was "cut." The best method is to fill the urethra with plain oil, not with glycerine which is hydroscopic, further contracting the urethra. Next work one or two whale bone filiforms thru the stricture, leave them in the urethra and fasten to the penis with plaster and put the patient to bed with hot water bottles to perineum. Gradually a little urine leaks thru. Leave these bougies in forty-eight hours and the stricture gradually dilates. At the end of this time use a rat-tail bougie and if possible screw on to it your smallest follower sound (Le Fort). If there has been no bleeding, the next day again use the rat-tail bougie and a larger sound. If the urethra is too tender, wait a day or two and give sandlewood oil or oil of copaiba.

By this gradual dilation you avoid an operation and best restore the urethra to its former caliber and condition. External or internal urethrotomy will only give you a bad traumatic stricture later. If the bladder is very full and the stricture impassable, it may be necessary to perform a suprapubic puncture once or twice. No strictures were encountered which did not respond to this treatment.

Acute prostatitis and *vesiculitis* demand, first, rest in bed, then sitz baths, urinary sedatives and suppositories of opium and belladonna for intense pain. All injections and irrigations should be discontinued. Oil of sandlewood or copaiba give relief. As the gland subsides in size resolution may be hastened by gentle massage and vesicle irrigations with boric acid or permanganate of potash. Chronic prostatitis and vesiculitis often require weeks and months of massage.

Acute epididymitis was often encountered, due mostly to the very active physical exertion. The symptoms are well known, sick all over, a chill and a very tender, swollen testicle. In 20 per cent. of the cases the vas is involved, being swollen to the size of the little finger, hard, indurated and giving pain and tenderness in the lower abdomen, sometimes mistaken for acute appendicitis. The infection ascends from the prostate, passes along the vas, out of the abdomen, down into the globus major, which is the portion most frequently involved. The pathology consists of an indurated cellulitis of the epididymitis, with abscess formation in 30 per cent. of them. In 10 per cent. there is also an acute sympathetic hydrocele.

The best results, rapid resolution and permanence of cure, were obtained by incision of the epididymis, usually under nitrous oxide anesthesia. The technic is simple. The testicle is held firmly by the assistant, the indurated globus major pointed upward. An incision is made in the skin, the epididymis delivered and cut thruout its length and to the bottom of it. A gauze drain is inserted and two thru and thru sutures used to draw the cut surfaces together. The relief from pain is instantaneous and the tumefaction subsides very rapidly. Often an abscess is encountered. Only one case relapsed, spreading to the upper pole, in all our series of five hundred cases. Epididymitis treated medically is a slow progress, and many are the discouraging relapses some years after the original infection. The vasitis when extreme should be treated in the same manner, incision.

Gonorrheal arthritis is also a surgical condition, for which we called into consultation the general surgeon, who gave great relief to an over distended joint by aspiration.

The next commonest venereal lesions we had to treat were the various ulcers of the genitals, aphthous ulcer, herpes progenitalis, chancroid and chancre. The first step in diagnosing these ulcers is demonstrating or eliminating the spirochete by means of the dark field, not one test but several. If it is a chancre, the patient wants to know it *early* before his blood stream is overrun with this organism. Upon the earliest discovery of the spirochete depends a rapid, complete elimination of this destructive organism. It is in the old unrecognized lues we so often are unable to get a negative Wassermann, even after unlimited treatment. In France the chancre and chancroid way outbalanced the gonorrhea in number of infections, about six to four. Of all venereal ulcers 60 per cent. of them proved to be lues. An order was issued that routine Wassermanns be made on all soldiers who had had venereal ulcers. The results were surprising that so many were positive.

The treatment of *chancroids* developed nothing new, the best results being obtained by the use of argyrol crystals. Bichloride solution of 1:10,000, copper sulphate 5 per cent., balsam of peru, thymol, iodide and calomel powder, each had a place; ulcers became stationary and a change was necessary. Cauterizing with the hot iron or nitric acid proved disappointing. Not only did they fail in checking the area of the ulcer but predisposed to suppurative adenitis.

Buboes, which nearly always accompanied chancroids, were usually painful, inflammatory and often suppurative, often long after the ulcer had healed over. They were best treated by rest in bed, heat and small incision when perfectly ripe, almost ready to break thru the skin. Dry dressing seemed best.

Chancres were best healed by calomel powder and the standard antisyphilitic treatment, of which you know. The mixed sores were treated the same as chancroids; some healed very reluctantly. In some of the lymphatic abscesses aspiration was employed; from these I saw no good results. The abscess would not drain, and frequently a couple punctures would completely break down the skin and a slough result, a slough very difficult to check.

The antisyphilitic treatment depended on the age of the infection, whether primary, secondary, tertiary or latent; most of it was primary or secondary. I will not go into details. It consisted of courses of neosalvarsan and mercury; the salvarsan given every five to seven days for eight doses, and the mercury daily, usually intravenously. A total of 5.70 gm. "606" in ascending doses, .30 to .90 gm., and a total of .11 gm. cyanide mercury and .40 gm. grey oil. Naturally these courses were subject to variations. Personally, I gave the salvarsan every other day unless contraindicated, believing that more rapid and permanent results were obtained by administering a lethal dose of arsenic to the spirochete early. Giving the salvarsan at long intervals accomplishes little, and a toleration to arsenic is developed. Old, irregularly treated syphilis is notorious for the difficulty of obtaining a negative Wassermann in spite of various treatments. To sum up, the army treatment of syphilis was intensive, persistant and thoro.

The *non-venereal urologic conditions* encountered most frequently were colon bacilli infection, tuberculosis, phimosis, hydrocele and varicocele. The colon infection involved the gastrointestinal as well as the urologic tract. They not only have a great tendency to relapse but are most difficult to completely eradicate. Frequency and urgency of urination, pain in the bladder on its filling and tenesums on its emptying, hematuria, often hyperpyrexia and a high leucocytosis were observed. Urinary sedatives, oil of sandalwood or capaiba, sweet spirits of nitre and urotropin were mostly used. Some cleared rapidly while others persisted in spite of autogenous or mixed vaccines.

Tuberculosis gave us some cases of epididymitis, a slow developing, non-painful tumefaction of the vas deferens and epididymis. These at times were difficult to differentiate from other infections of this structure. However, the history, the peculiar hardness, the irregularity in outline and the pipestem vas, together with other tuberculous lesions further up the tract gave us our clue. Involvement of the kidney and bladder was also discovered thru cystoscopy and a bacterial study of the urine. All these patients were returned to their homes for various reasons, as under no circumstances would they be able to endure the life of a soldier without a great advance of the disease and a complete breakdown.

Circumcision is rather a small thing to mention, tho in the army it has some significance. For example, in a true phimosis with frequent venereal inspection and attempting to draw back a very tight foreskin, a paraphimosis frequently results. These cases usually required circumcision to relieve them. Chronic blenorrhea with discharge is also an indication for circumcision, also recurring crops of warts or vegetations. The mere presence of a phimosis or small orifice in the foreskin was not necessarily an operative case. In some commands an over zealous regimental surgeon would send a large number of men to the hospital for this operation; while advisable and a good precedure, it was not imperative and interferred with the soldiers training.

Hydrocele was frequently encountered. The operative results were disappointing. It must be remembered that hydrocele fluid in the tunica vaginalis is often secondary to a chronic epididymitis. After the fluid has been drained off or after the tunica has been split, we find a greatly thickened sac which must be amputated, or we find a large nodular epididymis. This all tends to leave in the scrotum a larger organ than its fellow, with some tenderness. This the patient does not understand, who thinks that all he had was a little watery fluid in the scrotal sac, only requiring draining off.

I will last mention *varicocele.* Early in the draft this was looked upon as a condition easily remedied by a simple operation. The enlarged veins were easily removed. Yet, what were the frequent results? Some had hematomas, infection and a breaking down of sutures, with greatly prolonged convalesence. Others had a secondary hydrocele develop; some immediately, others in several weeks. These always occurred on the operated side. Whether this was due to trauma at the time of operation or changes in the blood supply or lymphatic stream, I do not know, but it occurred repeatedly.

But by far the most unfortunate complication was the pain the soldier complained of afterwards, even with perfect anatomic results. This varied from a suprapubic soreness, lumbar backache, inguinal tenderness and cremasteric spasm to shooting pains in the thighs and legs. Any doctor who sat on a disability board will confirm this statement. Some pain may have resulted from the pinching, bruising or tying of nerves. On the other hand, the pain was out of all proportion to the supposed or alleged trauma. There is the so-called sexual hypochondriac, who has pains and aches without lesions of any kind. Also we must remember that many of these boys had a very real terror of going overseas and availed themselves of any form of hospitalization to evade training or put off the dreaded embarkation.

It was not strange that this simple operation soon became a thing of ill favor to the line officers, as well as a nuisance to the base hospital surgeons, and was consequently dropped, only the very marked varicoceles being operated on. I may state this. These varicocele operations in private life very seldom give any after trouble. I saw many of the boys afterwards in France, some who had existing varicoceles, and never a word about them until they thought it might get them a class "B" or "C" disability and an early return to the United States. They were homesick.

I could tell you much more of the big urologic clinics at the national camps, at St. Nazaire, St. Aignan, LeMans and Brest . I will take this opportunity to say a word in praise of our enlisted Medical Corps. These boys came from all walks, stations and occupations. They learned with enthusiasm all you would teach them. They soon became wonderfully adept and skilled in assisting us in examinations, treatments and operations. They were loyal to a fault and seemed never to tire. Without their great assistance our work would have been impossible. Much has been written in praise of the Red Cross nurse, the Rose of No-Man's Land, yet in the hearts of all the thousands of sick and wounded dough boys will live the memory of these buddies, who were as gentle as any mother and as faithful as a brother, no matter what the service, the conditions or what the hour of the night.

The Thirteenth Anniversary of the founding of the Abbott Laboratories is celebrated this month. It is stated that more new medicinal chemicals and Council-passed products have come from the Abbott establishment during the past five years than from any other firm of the country. The firm has recently placed its employes on a profit sharing basis.

URINARY FREQUENCY.*

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While increased frequency of micturition is only a symptom, it is often the early and only sign in evidence to denote not alone disease of the urinary tract but many nervous, organic or constitutional disturbances. Normal frequency varies considerably both in individuals and sexes. The female generally voids less frequently than the male, while both seldom micturate at night except when led to do so from early training or the ingestion of much fluid previous to retiring. The average daily quantity of urine is about 50 oz., and mean capacity of the bladder is from 10 to 16 oz., varying largely from the constant amount of liquid taken by each individual.

Frequency may be due, first, to nervous or reflex origin, where the urinary tract itself may not be affected, as in persons of general unstable nervous temperment and those afflicted with sexual neurasthenia, also, in the early stages of tabes, spinal meningitis, myelitis or multiple sclerosis. The mental state, especially under the strain of prolonged fear or excitement, will often cause a frequency that will become persistent long after the usual polyuria noted under such condition subsides.

Frequency due to reflex irritation from rectal, anal or vulvar ulcers or fissures, or the presence of worms in the intestinal tract may exist without real bladder involovement but will lead later to a septic cystitis, if the reflex cause is not removed.

Second. Frequency due to the urine content and diseases of the urinary tract which would include the kidneys, ureters, bladder and urethra. The urine may have a constant high acidity, have excessive oxalate of lime crystals, phosphates or urates due to errors in diet or metabolism and each of these conditions may irritate a healthy bladder to regular frequency. Unfortunately these causes are often overlooked until the chemical irritation produces a chronic congestion with subsequent infection.

In cities where easy access may be obtained to toilets and urinals, a polyuria due to such diseases as diabetes mellitus, diabetes insipidus, chronic and interstitial nephritis may not be noted unless the patient complaining of frequency is directed to save a total twenty-four hour urinary output for examination. In the urethra some causes of frequency may be quite obvious, such as the acute and chronic specific inflammations, strictures and new growths, altho careful investigation is often necessary, especially when the bladder is also involved by infection.

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Disease of the bladder is naturally the first assumption when frequency is noted and the layman will sometimes himself suggest a diagnosis which unfortunately is too often accepted and so treated. Even a mild cystitis will cause frequency usually felt during the day but, as the inflammation becomes more chronic, nocturnal urgency results and rest or position of the body gives but temporary relief. One should not be lulled into security of diagnosis in presuming that a cystitis is the real cause of the frequency. The bladder infection may be and often is secondary to disease higher up in the urinary tract.

When the cystitis may appear slight and after persistent treatment the frequency may still obtain, a most thoro and accurate investigation should be made to exclude pyelitis, pyelonephritis or tuberculosis. Kidney infection and especially tuberculosis begins often insidiously and silently pursues a relentless course without voicing a symptom except the almost constant evidence of early frequency.

Tumors of the bladder may cause frequency but usually from a resultant cystitis and the same may be true of stone in the bladder, altho sometimes modified by rest or movement. So I believe that a diagnosis of cystitis as a cause of frequency should never be assumed without careful cystoscopic inspection of the bladder with preferably ureteral catheterization to discover the real source of the symptom.

Third. Diseases or abnormalities of the genital organs may be a prolific source of urinary frequency. Here a thoughtful consideration should be given to the anatomic relations of the urinary and genital apparatus in the male and female. In the male the genital and urinary organs are in close relationship. The prostate surrounds the urethra and as age advances encroaches upon the bladder neck and even invades the viscus itself. The seminal vesicles are closely attached to the bladder and their ducts empty into the urethra. In the male the bladder is firmly supported by the prostate and padded by the arolar tissue surrounding the seminal vesicles, while in the female the bladder below has but the lax support of the yielding vaginal vault and is only affected by the uterus when that organ is misplaced or enlarged.

Disease of the prostate is obviously a source of frequency both in the acute inflammations and the chronic changes which supervene as age advances, but I would desire to especially note here the rather common mistake of attributing to the prostate a frequency markedly nocturnal which is due either to the presence of an old endovesiculitis or the effect of a wide spread perivesiculitis. Unfortunately these vesicular conditions are usually encountered in men who are reaching the so-called prostatic age, when treatment that might be most effectively curative is neglected on account of the suggestive thought that operative interference is necessary.

In women the pregnant uterus undoubtedly may be a cause and displacements or fixations may be the inciting factor that can easily be overlooked, especially where there is a coexisting bladder infection. To cystocele is often attributed this effect, when I am quite sure many vaginal operations for relief might be obviated if the bladder or kidney condition was more carefully considered, as a trigonitis with persistent frequency is more often the cause of the cystocele.

From all these factors might I not urge a more careful consideration of this common symptom. A wise locomotive engineer will not carelessly disregard the simple red signal of danger in a block system; then why not let us carefully consider this very early, often marked and rarely absent signal of great danger to our physical organism.

URINARY FISTULAE*

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The fistulae I wish to describe are those resulting from surgical measures and undertaken at some previous date. In the male patient we may begin with the anterior urethra. The commonest cause of fistulae in this location is operations undertaken for cure of hypospadias or small periurethral abscesses of the fossa navicularis.

The first sort of fistulae are very distressing, tho in no way dangerous to the patient, and are very difficult to close. Plastic operations invariably lead to an infected wound, urinary leakage between stitches or thru stitch holes, and after granulation it is found that the fistula persists.

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The method by the insertion of a piece of vein in place of the interrupted urethra has proved unqualifiedly a failure with me. Operations in which the urethral mucosa is freed and pulled forward to obliterate the fistulous opening are a failure in young men, even when bromides are freely used to prevent erections. In the second class of cases, those with a tiny fistulous opening, due to a small periurethral abscess, very good success in my experience follows cauterization of the sinus. By the time the edema of the cauterization has subsided the sinus is closed.

Perineal or scrotal fistulae anterior to the sphincter muscle are comparatively rare. They can be closed by placing a retention catheter in the urethra for a time and denudation of the epithelial lining of the fistulous tract.

Posterior to the sphincter muscle the same treatment is advocated. When there is intravesical pressure on urination it is mechanically impossible for such a fistula to close. When this is relieved, closure tends to follow. The exceptions to this rule are those cases of persistent tuberculous fistula after operations on a tuberculous prostate. Eventually, however, these tend to close.

Some perineal fistulae after perineal prostatectomy are very annoying. I remember the case of Mr. D., in Eugene, Ore., whom I operated upon about ten or twelve years ago. Fistula remained patent about three years. Then it closed after suprapubic cystotomy for drainage.

Prostatorectal fistulae are notoriously persistent. Operation for their cure is useless unless an opening is made in the bowel to prevent postoperative infection. Closure of the artificial anus is the most dangerous stage of the series of curative operations. This in itself has a high mortality. In the cases operated upon in this way by myself in the past twenty years, 45 per cent died from this procedure. Perhaps others are more skillful. A recent article in the *Annals of Surgery* gives about this percentage of mortality for closures of an artificial anus.

Operations upon vesicovaginal fistulae require suprapubic cystotomy for success. I am aware that it has sometimes been done without this by drainage thru an inlying catheter, but in the majority of cases such a catheter only drains perfectly a part of the time and it is essential that no urine leak thru the wound at any time. those who have, by good luck, had one successful case without suprapubic cystotomy have trying experiences coming to them, if they continue to depend on the efficiency of an inlying catheter for drainage.

Cases where the fistula is from a break in continuity of the lower ureter are of two kinds—those in which the ureter has been severed and those where it has been nicked. I do not think it makes very much difference which exists, unless the nick is a very small one. Sometimes it is possible to pass a ureteral catheter past the leak and, leaving it in place for a week or more, to allow granulations to close the fistula, while drainage is thru the catheter. More often this maneuver, which looks so plausible on paper, is unsuccessful because a catheter can not pass up beyond the leak.

It is possible, especially where no renal infection exists, to simply tie off the ureter and leave it. There is abundant proof that the kidney so treated will be taken care of by nature and gradually atrophy. Or the ureter may be transplanted into the fundus of the bladder. Such a method of transplantation is not as easy as it sounds and a considerable number of failures result.

Fistulae from the upper ureter or kidney generally easily close themselves. If not, a ureteral catheter of large size, passed into the renal pelvis and allowed to remain there a couple of weeks, generally secures the desired result.

Tuberculous fistulae are notoriously hard to permanently close wherever situated, but time, tuberculin and surgical common sense will succeed finally.

Often enough renal fistulae result in almost complete destruction of the kidney. For this reason exploratory incisions for renal stone should, if possible, be made into the pelvis of the ureter, not the renal cortex.

The cardinal principle of successful treatment of urinary fistulae is efficient drainage. Without that, failure surely results. Some operations for repair look well on paper but only occasionally succeed. The simpler the procedure, the better because, if failure results, no harm has been done.

Most postoperative fistulae of the ureters are due to ignorance of anatomy on the part of the operator. Some are the result of unavoidable misfortune. Plastic repair operations are not easy operations.

THE PHOSPHATIC INDEX AS AN AID IN DIAGNOSIS.

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The science of medicine has made great strides forward during the past decade. Some of the achievements still and always will pay increasing dividends, others have passed into the hands of receivers, soon to reach oblivion.

The phosphatic index first described by the writer in the *Medical Record,* 1908-09 and 10, seemingly not only has held its place but, judging from medical articles and personal communications, is rapidly forging ahead.

We have always considered disease from two standpoints, organic and functional; the first with a definite underlying anatomic change, the latter not so. It may be granted there is no anatomic change in functional conditions, but there is a cause, as there is for all things, physical or mental, if we look for it.

We fully realize that blood has a nutriment, a food so to speak, which is hemoglobin. We have a test that shows whether it is normal in amount, also a test that shows whether the containers (red cells) are in sufficient number. Bone has a nutriment, calcium; muscles, protein; so also have the nerve-cells of the brain, phosphorus, lecithin and nuclein. These substances are taken from the food we eat. Not only is sufficient taken to furnish the normal daily calls for energy, but sufficient also to create a reserve.

It must be conceded that every function of the human body, every thought we have, every word we speak, depend entirely upon the brain for energy that is expended. Individuals are not always well, that is, they are not always in a condition where sufficient food can be taken thru the mouth. The creation of a reserve is a wise provision of nature for such emergencies. Have we not a duplicate of practically every organ, where one is all that is absolutely necessary, the other is the reserve.

Phosphorus, lecithin and nuclein, after they have performed their functions, are cast from the system in the urine in the form of phosphates; they are the end products of the above. Phosphates appear in the urine in the form of calcium and magnesium, constituting what is known as the earthly phosphates; and as acid sodium and potassium phosphates, the alkaline phosphates. The earthy phosphates appear in freshly passed urine as amorphous debris, visible to the naked eye, or at times after boiling the urine becomes slightly opaque. This is the same variety; both may be dissolved by an acid. From a clinical standpoint they have but little value, generally found in alkaline urine, following a meal rich in vegetables, also in diseases of bone, as ostitis, caries, rickets and the like. Unless they are in excessive amount, when they should be removed by filtration, they in no way have any bearing on the alkaline variety about to be described.

The alkaline variety appear as crystals and only after precipitation with the ammonia magnesium mixture (aqua ammonia, sulphate of magnesia, chloride of ammonia, one ounce each, water 8 ounces) they resemble fern leaves, except under certain conditions when they appear amorphous. In some 30,000 urinary examinations by the writer, this variety of crystals has never been observed except after precipitation. This statement has been confirmed by Dr. Dewitz, pathologist to Dr. Chas. G. Stockton, in about 25,000 examinations.

The rise and fall of the alkaline phosphates is influenced almost entirely by the action of the nervous system. In fact, it is now generally accepted that the alkaline phosphatic elimination shows nervous metabolism in exactly the same manner that urea shows muscular metabolism.

The physiology of the nervous system is well described by Dr. J. C. Clemesha, *N. Y. Med. Journal,* March, 1912, "The Phosphatic Index, its Relation to Disease of the Eyes". He says, "Dealing with the physiology of the nervous system we must assume that the nerve-cells are prepared for their work or usual outlay of energy by food substances that nourish them, and in common with other systems of the human body there is a large reserve of nutriment that may be called upon in times of need. We have two kidneys when one will do the work; we have two lungs when one is sufficient, and, as the muscles have a reserve for times of stress, so also has the nervous system".

Along similar lines of nerve-cell reserve, we find the statement of Prof. Shaw in his treatise on nervous diseases. When speaking of neurasthenia, he says, "This inherited (we know it may be acquired) unstable state of the nervous system depends evidently upon some defect in the power of the neurones to assimilate and store up nutrition and force in sufficient quantities, and with sufficient rapidity to carry on fully and easily the work of life."

One thing must be conceded. Any excessive withdrawal of a substance from a part, be it of the human body or things external, without a correspondent replacement in time causes depletion. Every action, thought, word and deed has its origin in the brain. It, therefore, is only reasonable to state, when any of the forces mentioned are carried beyond the normal, extra energy must be expended.

The function of digestion and assimilation is entirely under the control of the nervous system. A curtailment in energy means a like curtailment in digestion and assimilation (90 per cent of indigestion is said to be nervous in origin). In other words, it is retarded. This occurring, a new factor is added in the production of neuroinidia. Resisting power in all tissue, be it flesh or bone, is supplied to the part thru the nerves; insufficient reserve nutrition means a lowering of resisting power.

Two kinds of tire or fatigue are recognized, physical and mental. The laborer returns from his task almost tired to death. He seeks repose and upon arising feels fresh, entirely rested. His is tire of the muscles—physical. In the case of the men who works with his brain it is entirely different. He returns from his office fatigued, tries to recover by sleep, but sleep is more or less disturbed; he has brought his work home with him. Sooner or later fatigue is a constant condition. He is as tired in the morning as when he went to bed. Various other symptoms arise; eye strain with headache develops; dyspepsia, accompanied by gas accumulations; pains of different varieties, neuritis, neuralgia and the like. In other words, a patient with neurasthenia has presented himself for treatment. This condition goes a step further, if an organic condition ensues, a catarrhal condition of any part, or recovery from any illness. Resolution will be slow, resisting power is below normal as will be readily shown by the phosphatic index.

The modus operandi for ascertaining the phosphatic index is very simple, taking but a few minutes and using the second urine passed in the morning, preferably about ten o'clock. Fill phosphatometer (a glass tube, graduated to show N. P. plus and minus) to U with urine, add solution mentioned to S, shake thoroly and set aside for ten minutes. The mixture should turn milky at once and in a few minutes the precipitate will commence to settle. If in ten minutes it reaches N. P., in a practically solid compact mass, the nervous system as the causative factor in any condition may be eliminated. If it does not sink, is light and fluffy, or goes below N. P., the nerve-cells are in a state of starvation. In both cases the reserve is low, and little or no result will be obtained until the nerve-cell nutrition is furnished the impoverished cells.

Where the precipitate remains in a practically solid condition above N. P., irritability or hypersensibility of the nerve-cells is present; they are working over time. In this condition, a sedative is called for valerian and the bromides, if the case is acute; bromide of gold and arsenic, if a chronic condition. Such is the condition generally found in high blood pressure.

Much information may be gained from viewing the alkaline crystals with the aid of the microscope. If normal, they will appear fern-like in shape, about five-eighth inch in size, when viewed with a one-half inch objective. In practically every case where there is a low index, or the precipitate does not sink, the crystals will appear light in weight, at times irregularly fringed. Finding them with no formation (amorphous) in the absence of liquor, excessive use of tobacco or drugs, as morphine, cocaine, etc., they are a strong indication of commencing degeneration of the brain tissue. (Six cases appeared thus in the writer's practice, all resulting in insanity in from six to nine months.) Pregnancy between the third week and third month is shown by the disappearance of the feathery sides; the great majority of the crystals appear like stems, stripped of their foliage. (Year book, 1906.)

The following brief report of cases will show the ease with which the nervous system as a cause may be ascertained.

Dr. W. Brachial neuritis for six or eight weeks. Examination of the urine showed no albumin, sugar, pus, casts or excess of uric acid; indican was normal in amount; phosphatic index N. P., crystals normal. An opinion was given that the nervous system was in no way a factor. The doctor had taken aspirin, electricity, etc. for weeks with no result. Advising a possible pressure on the nerve, surgical advice was sought. The surgeon found such to be the case which he relieved and the pain ceased.

My own case. Brachial neuritis. Consulted an eminent nerve specialist who confirmed my diagnosis and ordered aspirin. This I took regularly for over two weeks with no abatement of pain. Becoming exasperated, I took my own index, finding it 85 per cent. minus. Nerve-cell nutrition in the shape of phosphorus, nux and can. ind. relieved the pain inside of forty-eight hours. It has not returned in five years.

Mrs. G., Cuba, N. Y. Seen in consultation. Brachial neuritis of several months standing; all sorts of treatment with no result. Index immediately taken, 150 per cent. plus, solid. On the length of time it had existed bromide of gold and arsenic was given. A marked lessening of pain occurred in about five days; in ten days it had entirely disappeared and has never returned. It might be stated a blood pressure of 160 was found in this case. As the index dropped, the pressure likewise, registering normal in two weeks.

Mrs. W. Constant, dry, irritating cough for five or six weeks. No expectoration of any account, but was losing flesh and strength. Lungs not involved, no T. B., no reflex cause could be found In consultation, advised phosphorus mixture with two raw eggs daily. The cough ceased in a few days, sleep returned, she became stronger, gained ten pounds in two weeks and was alive and well seven years after.

The most pleasing reports the writer has received come from the medical superintendent of a large sanitarium for the treatment of rheumatism. He says that about two-thirds of the cases that come for treatment with a diagnosis of rheumatism, and which have been treated for weeks and even months, prove not to be rheumatism, but some condition of the nervous system accompanied by pain. He takes the phosphatic index in almost every case, prescribing according to its reading.

There can be no question regarding patients with indefinite pain, when it is relieved almost immediately by nerve-cell nutrition. They did not have rheumatism, but neuroinidia, a condition of nerve-cell starvation. Neurasthenia could be suggested as the condition.

Dr. Chauncy Pelton Smith, Univ. of Penn., author chapter 20, Surgery by American Authors, says, "Taking the phosphatic index should be a routine in all cases, medical or surgical. It gives gratifying information in all obscure conditions."
9 North Pearl St.

Reprints Sent on Request. Armour and Co. will send on request to any physician a reprint of Fenger's article on "The Seasonal Variations of the Iodine Content in the Iodine Gland." This paper records work covering more than twelve months done in the research laboratory on inorgano-therapeutics of Armour and Co.

DIFFERENTIAL DIAGNOSIS IN EPIDEMIC LETHARGIC ENCEPHALITIS.*

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The writer recently attempted to give a brief summary of the syndrome more commonly seen in epidemic encephalitis[1], in which the more important matter of differential diagnosis was omitted, not altogether unintentionally. Indeed, it must be confessed that the differential diagnosis in many cases is either extremely difficult or impossible. This follows for several reasons. Primarily because the causative organisms can not be isolated and there is no specific test for the disease. For the same reason it is impossible to surely separate it from other infections of the cerebrospinal system, particularly when sporadic infections attack the same regions affected by the epidemic form of encephalitis. Again, while the infection of epidemic encephalitis is more apt to assault the cerebral basal ganglia and nuclei of the pons and medulla, yet no portion of the nervous system is wholly exempt, as shown by autopsy findings and clinical manifestations.

Therefore, the variety of symptoms possible is only equalled by the actual variety of diagnoses made, provided one is gifted with a fecund imagination and is disdainful, or neglectful, of prolonged and careful observation. For example, attacks of abdominal pain are not infrequent in encephalitis and have led to abdominal sections, while the presence of stupor, in conjunction with glycosuria, has resulted in the diagnosis of diabetes, within my consulting experience. These mistakes may seem unpardonable but they are not. When one considers the newness of the disease, its polymorphic manifestations, together with the not wholly satisfactory personal infallibility, Kipling's prayer for "an humble and contrite heart" seems not altogether irrelevant.

It may be not out of place to first present a composite picture of the syndrome of encephalitis, as it has become mirrored on the mind in its commoner phases. A tetrad of symptoms is most characteristic: Weakness, fever, lethargy and cranial nerve palsies.

In the more moderate type the patient—oftener a male—becomes gradually weak, drowsy, apathetic, runs a low, irregular fever—100° to 102°F.—and suffers perhaps from occasional nausea and vomiting with persistent headache. Or pain in the limbs may mask the other early symptoms, in case the attendant is unobservant and unalert, and lead to such aberrant diagnoses as rheumatism or appendicitis, both of which have been made in cases the writer has seen.

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[1] Northwest Medicine, Oct. 1919.

The face is expressionless and mask-like, and the intellectual processes are slow. Double vision is the most common of all cranial nerve palsies. The patient awakes to see two lights instead of one, or is driving a horse only to find that he has suddenly acquired a pair. He then remains at home, and in bed part of the time and, when he arises is seized with dizziness, and perhaps falls.

The mental state may vary from moderate drowsiness to marked stupor with mental confusion or even delirium. The pupils are often sluggish to light and the eye grounds frequently show edema of the retina with swelling of the nerve heads, or choked disks and retinal hemorrhages with hazy media. Vision is defective in such cases and ptosis is common. A coarse tremor or choreiform movements of the arms now develop, so that eating becomes difficult and, if the patient is able to convey food to his mouth, he may forget to chew or swallow it.

Spasticity of a limb or limbs may occur. There may be difficulty in swallowing food and liquids may be returned thru the nose. Often the eighth nerve does not react to injections of cold water into the ear, that is, neither dizziness, past-pointing or nystagmus result, but deafness has been but occasionally observed. Partial facial paralysis is frequent. Paralysis may occur as mono-or hemiplegia, but more commonly there is paresis which varies in intensity from time to time. Indications of meningeal irritation may be present, as Macewen's, Kernig's or Brudzinski's signs, with some rigidity of the neck. These usually are not so marked as in meningitis, and are more persistent than in anterior poliomyelitis. The reflexes are variable, increased or absent, and Babinski's sign is often present. Polyuria is observed in many cases.

The leucocyte count is normal or moderately increased, and the spinal fluid is clear, sterile, with normal, slightly increased or, more rarely, high cell count, and it may be under considerable pressure. Recovery may be rapid in mild cases, or extend over months in severer ones. Especially are the eye changes and polyuria slow to disappear. Polyuria is apparently due to involvement of the posterior lobe of the pituitary body, since the symptom (and its accompanying persistent thirst) is sometimes immediately relieved by subcutaneous injections of pituitrin but returns again on discontinuance of the drug.

Beginning with the more severe cases, where the diagnosis is difficult, the following may be cited as an example.

A man of 36 presented himself at the County Hospital, in August, 1919, with headache, dizziness and vomiting, positive Romberg's sign, but no fever or leucocytosis. The condition had come on gradually existing for three weeks. The patient left the hospital against advice but returned worse in October. The history, blood and spinal fluid were negative in respect to lues. The patient was carefully examined. Several specimens of the spinal fluid were obtained. It was under considerable pressure but negative in other respects. General neurologic examination by Dr. Gulick and myself was negative except for absent knee-jerks, positive Romberg's sign and marked ataxia with tendency to fall. Diplopia existed at times and the pupils were sluggish to light. Dr. Bentley found recent retinal hemorrhages and choked disks in both eyes. Dr. Harter tested the vestibular apparatus and discovered no reaction to injection of cold water in the left ear. X-ray of the head, chest and digestive tract was negative. Falling to the left was more constant. There was no deafness in either ear.

Here is everything we need for the general diagnosis of brain tumor, vomiting, headache, choked disks. In addition we have all that is required for a diagnosis of cerebellar tumor in the dizziness, ataxic gait and falling, taken with the paralysis of the eighth nerve. The vomiting was not projectile, and it came on without nausea, especially when the patient changed position. The ataxia was not simply a swaying from side to side but a drunken reeling.

The patient after four months illness died of asphyxia and respiratory arrest. The pulse was little affected after he became unconscious and cyanosed, and he could probably have been kept alive some hours by the pulmotor. This is very common in tumors of the cerebellum and fourth ventricle, where paralysis of the respiration antedates that of the heart by many hours. This mode of death served further to confirm the diagnosis of cerebellar tumor in a man who had been suffering for four months without fever, lethargy, or weakness but with all the symptoms of brain tumor.

Briefly, autopsy revealed no tumor of the brain but only evidences of inflammatory lesions of encephalitis, affecting chiefly the left lobe of the cerebellum and the medulla, which were invested with a delicate fibrinous exudate macroscopically. The lateral ventricles were distended. There were no other pathologic changes of note in the rest of the body. Cultures of the spinal fluid were negative. Here we have an inflammatory lesion which now appears to be impossible of discrimination by clinical diagnosis from our conceptions of brain tumor. Of the tetrad of symptoms of encephalitis—weakness, lethargy, fever and ocular palsies—we have, in this case, but one leg to stand on (cranial nerve palsies), which is as unstable a basis in diagnosis as in maintaining a physical equilibrium.

I have known of several cases recently diagnosed as brain tumor by the ablest men and yet recovery has ensued. One, in particular, where the association of several cranial nerve palsies with protracted fever, somnolence and eventual recovery, has left no doubt as to the existence of encephalitis. Neal[2] states that "differentiation of encephalitis from brain tumor has proved a stumbling block to some very eminent neurologists," from which class the writer may at least claim exemption. Brain tumor was diagnosed by several able men in a recent fatal case presenting constant headache, stupor, increasing hemiplegia, and choked disks, but the writer considered it encephalitis because of onset with respiratory infection, rapid pulse thruout, cucocytosis, pleocytosis in the spinal fluid and absence of vomiting.

There are undoubtedly many cases of encephalitis, in which only time or an autopsy will determine the diagnosis. One point may be made here in reference to lumbar puncture, in undoubted cases of tumor of the cerebellum or medulla, and that is its contraindication. The release of fluid may allow the tumor to jam the medulla down on the foramen magnum and lead to sudden death.

In differentiating between meningitis, meningism, and encephalitis the following case may be introduced.

A previously healthy and well nourished girl of 14 had been sick and in bed much of the time for three weeks prior to the first visit in consultation with Dr. Bailey, Dec. 28, 1919. During this period there had been irregular fever, with a maximum of 102°F, drenching sweats, constant headache and occasional vomiting. The mental condition was fairly normal. The pupils were uniform and regular in size and reacted to light. There was photophobia. The ear drums were normal. At time of first examination by the writer the temperature was 104°F. and the pulse but 76. The head was slightly retracted and stiffness of the neck was marked. Brudzinski's sign was positive and also Kernig's sign in the right leg. The spinal fluid was clear, not under pressure, with a cell count of 12 and strongly positive Nonne's test. No tubercle bacilli or other microorganisms were found. A guinea pig was inoculated with the sediment. Wassermann test of the spinal fluid was negative, as also von Pirquet's skin test for tuberculosis. This is of no special significance in tuberculous meningitis. The skin was generally hyperesthetic but the physical examination otherwise negative, including the reflexes. The urine was normal. Blood cultures were advised but not made. Three days later the condition was progressively worse, polyuria was marked and thirst excessive. Micturition became involuntary. Left facial paralysis, double ptosis and spasticity of the left arm developed. Eye examination showed double optic neuritis, but absence of choked disks and retinal hemmorrhages. Fever continued high and the pulse remained slow. The patient died a week after my first visit and a month after the onset of the disease.

In this case encephalitis was considered and could not be wholly eliminated. The preponderance of evidence was against it. The high fever at a late period in the disease is uncommon, and the pulse is more often rapid than infrequent, even without fever, in encephalitis. The signs of meningitis were more marked than is usual in encephalitis and argued for meningitis. The course was rather long for acute cerebrospinal meningitis and the spinal fluid findings were wholly negative.

The leukocyte count in the beginning was only 6,000, which is low for any form of meningitis but common in encephalitis. But later there was a leucocytosis of 42,000, with 80 per cent. of polynuclears. The white cell count was never over 15,000 in Dean's series of 40 cases of encephalitis.

At autopsy a marked purulent meningitis was found over the right cerebral hemisphere and an adhesive fibrinous meningitis on the left. No focus in the body was found to account for the infection. The purulent exdate contained numerous chains of streptococci. The diagnosis before death suggested most strongly tuberculous meningitis, owing to the gradual onset, age of the patient, the leucocyte count, and the spinal fluid findings. The cell count is usually higher in the spinal fluid in tuberculous meningitis, but not always so. There are many cases where it is not wholly possible to discriminate during life between tuberculous meningitis and encephalitis.

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[2] Archives of Neurology and Psychiatry, Sept. 1, 1919.

In regard to spinal fluid findings it may not be amiss to discuss here meningism which must be differentiated from encephalitis. It is commonly taught, as in Levinson's recent book on the cerebrospinal fluid, that a cell count of over 10 per cmm. indicates pathology of the nervous system. Again, that in meningism "the cells are increased slightly or not at all," and the globulin and bacteriologic tests are negative.

This is indeed the ordinary interpretion of spinal fluid findings but it may be quite erroneous. Herrick and Dannenberg[3], in a series of 5,000 lumbar punctures, discovered a high cell and protein content and pleocytosis not infrequently—in all 76 cases—including such diseases as pneumonia, tonsilitis, scarlet fever, typhoid fever, influenza, etc., without the presence of meningitis. Meningism was or was not seen in these cases with these findings. Meningism may, therefore, occur with a high cell and protein content in these diseases. It follows that one is not justified in ruling out meningism with a high cell count and protein content in such conditions.

In respect to a high cell count in the spinal fluid indicating pathology of the cerebrospinal tract. While it does undoubtedly mean pathology, there is a paramount, practical difference between pathology and noteworthy clinical significance. Thus a comparable and apparently clarifying simile would be to liken the clinical significance of albumin and casts in the urine in acute infections with the finding of a high cell and protein content in the spinal fluid in acute infections. Both are pathologic but both may disappear, and do so rapidly and frequently, without leaving permanent lesions—with the subsidence of the causative infections.

In the differentiation of encephalitis from meningism one must not rely too greatly on the spinal fluid findings, and this applies equally well to all other laboratory tests. In considering meningism one should take into account the presence or absence of causative diseases (especially pneumonia), and the degree of the meningitic symptoms. In the case of the purulent meningitis, described above, the spinal fluid was negative (blocking off of the subarachnoid space), but a diagnosis of meningism resting on this evidence alone would have been a sad mistake. One swallow does not make a summer nor one test a diagnosis.

Between anterior poliomyelitis and encephalitis it is impossible to distinguish by means of the spinal fluid alone. Herrick and Dannenberg (loc. cit.) affirm that in poliomyelitis or meningitis the cell count should be over 100 per cmm. In personal cases the cell count in encephalitis has been low, not over 30, but in many reported cases the cell count has been high with increased protein content.

The absence of anterior poliomyelitis in a region and the rarity of the encephalitic type, together with the incidence of the present epidemic of encephalitis, would speak strongly for epidemic encephalitis, where differentiation between it and the cerebral type of poliomyelitis is in question. Infantile paralysis is included in the Heine-Medin group which embraces also Landry's paralysis and pontine, cerebral, ataxic, neuritic and meningitic forms, thought to result from the same infection with different localization.

In Landry's paralysis the onset is rapid, progressive and usually ascending, beginning in one foot and ascending to involve in turn, the legs, thighs, trunk, arms, neck and muscles of deglutition. Fever, lethargy and tremors or twitching are generally absent.

Botulism and so-called toxic ophthalmoplegia may be considered as closely allied to this group, in that infections or toxemia of the cerebral basal nuclei lead to cranial nerve palsies, and encephalitis is either simulated or actually results.

Botulism, or poisoning by B. botulinus, in tainted sausage or improperly canned vegetables or meat, or in ripe olives, may closely resemble encephalitis. In botulism the onset is insiduous-in from 12 to 70 hours after eating the tainted food. Vomiting and moderate pain may either precede or follow the essential symptoms, which consist of cranial nerve palsies. The vomiting and abdominal distress may indeed be altogether absent. The 3rd, 4th, 6th, and 10th nerves are more often involved. Dimming of vision, diplopia, ptosis, facial paresis, difficulty in swallowing and articulation, muscular weakness and ataxia are especially prominent. There may be moderate leucocytosis. From encephalitis botulism differs in absence of fever and the fact that there may be several victims resulting from partaking the same tainted food. As fever is often not seen in encephalitis, when the patient presents himself, the diagnosis might be impossible without the evidence of food poisoning. The writer has never seen more than one patient with encephalitis in the same house.

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[3] Jour. A. M. A. Nov. 1, 1919.

In regard to toxic ophthalmoplegia. This condition may closely imitate encephalitis and, as I shall attempt to show, is often nothing but encephalitis. For instance, a patient with ethmoiditis suffers from constant headache, dizziness, vomiting, double vision, leucocytosis, and spinal fluid under pressure, with pleocytosis and increased protein content. Or another, who presents himself with paralysis of the external rectus, dizziness, drowsiness, sluggish pupils and a condition diagnosed as epidemic encephalitis by an able specialist of large experience with the disease. Both these cases rapidly recovered, after securing drainage in the ethmoiditis and extraction of·some abscessed teeth in the latter case.

The point I wish to emphasize here is, not that discrimination must be made between toxic ophthalmoplegia and encephalitis, but that such cases are indeed actually sporadic forms of encephalitis thru infection of the blood from local foci of infection in the head. There is no reason why there should not result sporadic forms of encephalitis as of meningitis, and either may result from foci of preexisting infection in the body.

In the diagnosis of encephalitis it is always necessary to eliminate lues and, in patients past middle age, arteriosclerosis. In this connection the following case, seen Dec. 11, 1919 with Dr. Gluick, may be cited.

The patient, a male of 61, denied lues or tuberculosis and had no previous history of importance, except an attack of influenza in 1918, and a head injury four years before, in which a scalp wound had been inflicted. There was no unconsciousness and the patient left the hospital two days after the accident.

Now there is headache, which has persisted for four months with gradual progressive weakness and loss of memory, causing the patient to give up his business. For the past two weeks he has passed much of the time in bed and, when he arises, is often seized with dizziness.

He is drowsy, falling to sleep frequently during the day and sleeping all night. The sight is dimmed and the pupils sluggish to light. Fever is absent and the pulse is 90. The reflexes and sensations are practically normal. Examination of the eye grounds by Dr. Joiner reveal hazy media, retinal margins indistinct, veins engorged, minute hemorrhages about the nerve heads, and choked disks in both eyes. Blood pressure, 130 and 75. Leucocyte count, 10,000; polynuclears, 64 per cent., lymphocytes, small, 32 per cent., large 4 per cent. The spinal fluid was under slight pressue with positive globulin reaction, a cell count of 30, and negative Wassermann reaction, and sterile. The urine was normal, with specific gravity of 1020, and other physical findings negative.

Arteriosclerosis must be considered in view of the age and the presence of dizziness, weakness, headache, loss of memory, somnolence and absence of fever. But the absence of rigidity of the arteries, of abnormal urine, of high blood pressure, of accentuated second aortic sound and of aortic mumurs, all argue against arteriosclerosis. While retinal hemorrhages may occur in arteriosclerosis, the other eye changes, and especially choked disks, are not characteristic. It should be understood, however, that all systemic signs of arteriosclerosis may be absent during life and yet marked arterial changes may be discovered at autopsy, in patients with cerebral symptoms.

Cerebrospinal syphilis may simulate exactly epidemic lethargic encephalitis and be impossible of differentiation even in the absence of a negative spinal fluid and blood Wassermann reaction. Persistent headache, slight fever, transient diplopia, sluggish and irregular pupils, dizziness, stiffness of the neck, positive Kernig's sign, weakness, facial paresis, and a spinal fluid with positive globulin reaction, pleolymphocytosis and negative Wassermann test may occur in cerebrospinal syphilis. The whole tetrad of symptoms of encephalitis may be present—weakness, fever, cranial nerve palsies and drowsiness—the latter not marked however.

At the present time a case might be considered encephalitis that formerly one would have little hesitancy in pronouncing syphilis. There is no reason why syphilitic patients may not acquire encephalitis and in that event a positive Wassermann test would not rule it out. In ordinary cases without history of lues and with a negative spinal fluid Wassermann reaction, one may feel justified in excluding syphilis. But even then it is advisable to try a provocative Wassermann test. This resulted in a positive reaction and syphilitic treatment in a case that came within my knowledge.

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EDITORIAL

FURTHER NARCOTIC RESTRICTIONS.

All of our readers have probably received the revised narcotic regulations of 1919. Nevertheless it may be of service to call their particular attention to certain emphatic requirements in these regulations. Apparently the Government authorities propose to hold physicians and druggists to the literal observance of these restrictions. All of us heretofore have doubtless violated some of the regulations concerning the prescribing of narcotics which hereafter must be observed to the letter. It is emphasized that prescriptions must be written in ink. indelible pencil or typewriter and must be signed by the practitioner by ink or indelible pencil. Some druggists have hitherto accommodated the physician by accepting his prescription or its renewal over the telephone. This custom is now prohibited. The original prescription must be presented for every order for narcotics, filled out and signed by the physician. The pharmacist is made equally responsible with the physician, if prescriptions are dispensed containing narcotic drugs without the above requirements on the part of physician. It is to be observed, further, that in the treatment of addicts or habitual users of narcotics the physician will not be permitted to supply him with narcotics for the purpose of holding him over or saving his life until treatment can be administered. The exceptions still remain in the treatment of incurable diseases, such as cancer, advanced tuberculosis, etc., where the physician is in immediate charge of patients suffering from such diseases. While these restrictions may cause annoyance and irritation to some physicians, we might as well all of us recognize that this is a law and we are obliged to follow it. No excuses or exceptions will be accepted and everyone is to be treated alike.

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS.

The present tendency in different branches of specialism is to secure specialists approaching as near as possible to 100 per cent. efficiency. The latest aim toward perfection is seen among ophthalmologists. The American Board for Ophthalmic Examinations was organized in 1916. It does not confer degrees but issues certificates of efficiency, the possession of which will be considered evidence of superior qualifications on the part of its possessor and is intended to aid in raising the standard of ophthalmology. The Board divides applicants for examination into three classes: (1) Those who have practiced opthalomology ten years or more. (2) Those who have practiced five years and less than ten. (3) Those who have practiced less than five years. In seeking such a certificate, those in Class 1 are called upon for report of ten cases observed or treated with a list of papers or books published. These data, together with the candidate's professional work in his community, will furnish evidence of his fitness. Those in Class 2 are expected to report twenty-five cases observed and treated. These, together with service in an ophthalmic hospital or an eye clinic, will be evidence in determining his qualifications. Under Class 3 the applicant must have a degree from a satisfactory medical school with a year's service in an ophthalmic clinic or internship in an ophthalmic hospital, together with a year of special study of ophthalmology under competent instructors. In addition, the examiners may require practical clinical and laboratory work or a written examination. If a candidate fails in an examination he may be admitted to a second within three years. Examinations will be held annually in connection with the meetings of the American Medical Association. Accordingly, the next examination of the Board will be held in New Orleans April 26. Candidates must have their applications and credentials in the hands of the Secretary, W. H. Wilder, of Chicago, sixty days before the date of examination.

EFFICACY OF VACCINATION.

Those people, who during recent years have manifested a confirmed hostility against vaccination for small-pox, have developed the trait of keeping everlastingly at it. Like those opposed to the existing government, they never seem to be asleep in their efforts to devise some scheme for overthrowing the existing order of things. It is reported that these people of this opposing temperment are planning to introduce measures in the legislatures of the Pacific Northwest next winter to abolish all kinds of vaccinations, together with the use of serums and like remedies introduced subcutaneously into the system. Their minds are so blunted to the recognition of facts that they refuse to admit any prophylactic or curative results from these proven and established methods of treatment.

It is always profitable to call attention to examples of the demonstrated value of any form of vaccination treatment. A recent American Red Cross bulletin describes an instance of successful vaccination against cholera in Poland. When this disease appeared in a certain province last January, Red Cross doctors had great difficulty in persuading the people to submit to vaccination, the opposition almost resulting in rebellion. The reason for this hostility dated back to the time when a few years ago the Russian authorities declared martial law and began forcible vaccination. Infection followed in many cases, causing not only loss of limbs but of life. The people in their wrath threw the Russian doctor into the town well. The Americans, on the other hand, started an educational campaign, using printed posters and had all the civil and military employees submit to inoculation. Soon the people recognized the result of treatment and, realizing the dangers of the epidemic, they came in groups and finally in crowds with requests for inoculation against the disease. As a result, the threatened epidemic lasted only a few days, resulting in the loss only of a few lives. Of course many equally well authenticated examples may be quoted of epidemics averted by these scientific mthods of vaccination.

MEDICAL NOTES

OREGON.

Medical Examining Board. The present membership of the State Examining Board is as follows President, Dr. Frank E. Smith, Portland; Secretary, Dr. U. C. Coe, Portland; Treasurer, Dr. Roy C. McDaniel, Portland; Drs. John Besson, and Frank Wood, Portland; D. D. Young, D. O., Portland. At the recent special session of the legislature an amendment to the Medical Act was passed, giving the Board increased authority to pass on the eligibility of applicants. Examination fee was raised from $10 to $25.

Physicians and the State Federation of Labor. Last month it was rumored that some Portland physicians desired to form a union to affiliate with the American Federation of Labor. The President of the State Federation stated that six or eight months ago an application for a charter was presented and signed by a dozen physicians of that city. The request was in due time flatly rejected on the ground that members of the medical profession receive fees and therefore cannot be classed as salary or wage earners. Evidently they are not laborers.

Compulsory Vaccination. Recently the State Board of Health issued orders for compulsory vaccination of pupils attending the public schools. This order has recently been modified by the State Health Officer to the effect that it will be enforced only in communities where smallpox exists. The purpose is to forestall a general epidemic in any given community.

Injunction Against Vaccination. Last month a group of antivaccinationists in Portland moved for an injunction against compulsory vaccination in the schools until the courts decided whether or not an epidemic of this disease existed. The opponents claimed that there are too few cases of the disease in the city to warrant its being considered an epidemic.

Smallpox Much in Evidence. Altho smallpox was recently reported on the wane in Portland, eighty-nine cases were reported in the course of four days last month, which indicates the disease is still an active factor. Fortunately most of the cases are in a mild form.

Use of Agents Forbidden. The Portland City and County Medical Society last month adopted a resolution that members should be barred from the society who are in any way affiliated with an organization that uses agents to solicit individual patients. This action was directed against hospital associations which employ agents for this form of solicitation.

Site For Hospital. The city council, of Marshfield, has offered five acres of ground, known as the old cemetery, to the Mercy Hospital Association for the erection of a hospital. Archbishop Christie has taken up the financing of the project. It is proposed to build an institute to cost $150,000.

Barracks For Influenza Patients. Last month the South Portland Barracks adjacent to the County Hospital was opened as a temporary hospital for treatment of influenza patients who could not properly be isolated elsewhere. It was arranged for the accommodation of sixty patients, divided into two wards.

Hospital Drive. Arrangements have been made to canvass for the collection of $300,000 as a building fund for the Good Samaritan Hospital at Portland. The addition will be the third unit to the hospital plant as planned several years ago. It will be a four story brick structure, two hundred feet in length, built on the same general lines as the rest of the hospital.

New Hospital Begun. Work is begun on the construction of the Deaconess Hospital at Salem, to cost $50,000. It is expected to be completed and ready for use early in the summer. It will be a brick structure, to accommodate seventy-five patients.

Hospital Work Suspended. Work on the contagious hospital, adjacent to Kelly-Butte rock pile at Portland, was suspended last month on account of lack of funds. Considerable money has already been spent in building roadway and partial construction. Until more funds are available, the work was to be suspended.

Resigned Wardenship. Dr. R. L. Steiner, of Salem, who has occupied the position of warden to the penitentiary, has resigned this position and resumed his former post as superintendent of the State Hospital. Dr. E. L. Griffith, who has been acting physician of the hospital, has resumed his position as assistant superintendent.

Influenza Subsiding. During the latter part of January and early in February influenza was epidemic in many of the cities of the state to such an extent that public gatherings and meetings were prohibited. This included the closing of schools, clubs, theatres, etc. By the middle of last month the epidemic seemed to have subsided sufficiently so that these strenuous measures were abated.

Elected President. Dr. Esther Pohl Lovejoy, of Portland, has been chosen Vice-President of the International Association of Women Physicians. During the war she was prominent in Red Cross work both in America and France.

New Health Officer. Dr. Harry J. Anderson, of Corvallis, has been appointed City Health Officer. For more than a year this office has been vacant.

Dr. D. M. Brower, of Ashland, has moved to Roseburg.

WASHINGTON.

Winter Meeting of Examining Board. At the January semi-annual meeting of the State Medical Examining Board, held at Spokane, the following were successful in obtaining licenses to practice: C. T. Galbraith, Seattle; J. L. Bloch, Whitefish, Mont; H. C. Schumacher, Portland, Ore; R. L. Schulz, Seattle; Ramsay Spillman, Yakima; L. E. Story, Walville; J. C. Hayes, Portland, Ore; G. Wilfred, Holyoke, Mass; Gladys Rowley, Seattle; E. O. Rowley, Seattle. The list includes one lady physician, whose husband had been with the New Zealand Expeditionary Forces. The following are the officers of the Board: President L. M. Sims, Kalama; Vice-President, G. H. Davis, Kirkland; Secretary, W. M. O'Shea, Spokane; Treasurer, J. W. Ingram, Walla Walla.

Smallpox and Christian Science. A certain Seattle attorney has for a long time conducted suits of Christian scientists in their attacks upon existing laws of health and sanitation. He thus had charge of the suit to abolish the public school clinic and in waging the warfare against vaccination, which has occurred from time to time. He has often appeared in court defending the persecuted victims of compulsory vaccination and in vitriolic language has lambasted this filthy medical practice. Now it seems fate has pursued and overtaken him, since he has recently been quarantined on account of an attack of smallpox. His inconsistency has been manifested in that this ardent antivaccinationist is reported to have had his children vaccinated and revaccinated. Shades of Mary Baker Eddy! Sic tempora mundi.

Discharged in Course of Duty. Dr. R. Wilson, assistant commissioner of health of Tacoma, was last month peremptorily dismissed from service by the mayor. During the war the city worked out a plan for the control and treatment of venereal diseases, for the purpose of which a model hospital was built for the treatment of female patients. To this was added a free public clinic. In carrying out this work according to plans adopted, the doctor has been interfered with by the mayor and other city officials, apparently for the purpose of causing this work to be abandoned. Friction from this source produced the above result.

Smallpox Continues. All cities in the state continue with a large quota of smallpox patients. Spokane has had 115 patients at one time in quarantine, a large proportion being adults. Measures are taken in different cities to obtain as much vaccination as possible among school children in spite of abolishing of the compulsory law.

Work Begun on New Hospital. In spite of opposition of neighboring residents, a permit was last month obtained for the erection of the Virginia-Mason Hospital, in Seattle. The work of excavation has begun. Plans call for a concrete and brick structure, to cost $250,000, with basement and five floors. All latest improvements and conveniences will be incorporated in the institution.

Raising Funds for Hospital. A campaign is under way for raising money for the new St. Joseph's General Hospital, at Pasco. When completed the entire structure will cost $400,000. At the present time it is planned to build one wing which will cost $90,000. The building at present occupied as the hospital has been ordered vacated so that there is urgency for a new building.

Emergency Influenza Hospital. Owning to the need of hospital accommodations in Spokane last month, a temporary influenza hospital was adopted from an old skating rink. The main auditorium was converted into two hospital wards. Another was constructed on the balcony floor. Other necessities for hospital equipment were extemporized in other parts of the building.

Hospital Opened. The Ellensburg General Hospital was recently opened, erected by popular stock subscription amounting to $70,000. The hospital contains twenty-three rooms with modern equipment.

Addition to Hospital. At the annual meeting of the St. Luke's Hospital Association, in Spokane, the construction was authorized of a new building to be added to the institution. This will provide for three hundred beds. It was voted that work start by April first.

Fire Station as Influenza Hospital. During the height of the influenza epidemic last month, Fire Station No. 1, in Spokane, was converted into an influenza hospital for sick firemen. This plan was adopted owing to scarcity of hospital rooms and the lack of nurses.

Fire in Hospital. Last month a fire in the Fitz hospital, at Montesano, threatened serious destruction. The five patients in the hospital were safely removed and the fire subdued by the aid of citizens.

Schools Closed on Account of Influenza. Early last month a large number of schools in eastern Washington were closed on account of influenza. This applied particularly to many district schools, altho some in smaller towns were also affected. While the mortality has been low, the incidence of the disease have been very large and wide spread.

Appointed Assistant. Dr. O. O. Benson, of Spokane, has been appointed assistant at Edgecliff Tuberculosis Sanitarium, of which Dr. F. S. Miller is superintendent.

New Health Officer. The City Board of Health, of Everett, has appointed Dr. I. W. Parsons as health officer to succeed Dr. J. F. Beatty. Dr. W. B. Fulton and J. S. Purdy are new members of the board to succeed Drs. W. C. Cox and W. F. West.

New Health Officer Appointed. The city of Blaine has had its first health officer appointed in the person of Dr. M. A. Keys. Owing to the spread of influenza, together with scarlet fever and smallpox prevailing in the community, the appointment of a health officer was deemed imperative.

New Health Officer. Last month Dr. Corpening was appointed health officer of Harrington.

Woman President of Board of Health. Mrs. R. C. McCredie, of Sunnyside, has been elected president of the State Board of Health, succeeding Dr. H. H. McCarthy, of Spokane. Mrs. McCredie has been a member of the board for eight years.

Annual Meeting of Library Association. At a recent meeting of the Washington Medical Library Association, at Seattle, Dr. S. J. Holmes was reelected President and Dr. C. A. Warhanik, Secretary-Treasurer. Other trustees elected were Drs. Ivar Janson, C. A. Smith and W. S. Griswold. Reports showed the library growing and in a flourishing condition.

Fee Schedule Adopted. At a recent meeting of the Skagit County Society a fee schedule was adopted in accordance with the increased rates which prevailed in most county societies. The fee for day visits will be from $3 to $5, night visits from $5 to $10. Other fees are in proportion.

Puget Sound Academy of Ophthalmology and Oto-Laryngology at its annual meeting in Seattle elected the following officers for the present year. President, Dr. W. D. Cameron, Tacoma; Vice-President, Dr. E. J. Stubbs, Seattle; Second Vice-President Dr. Ernest Wheeler, Tacoma; Secretary-Treasurer, Dr. A. F. Mattice, Seattle.

Elected to School Board. Dr. C. F. Eikenbary, of Spokane, was recently elected a member of the school board.

Elected Commander. Dr. A. T. Lukins, of Pullman, has been elected Commander of Maynard-Price Post of the American Legion.

Dr. F. T. Hyde, of Port Angeles, has returned home for practice after having served for two years in the army, most of the time being in France. He has recently taken postgraduate work in the east.

Dr. W. A. Mitchell, of Colfax, surgeon of the O. W. R. & N., has been appointed surgeon for the Inland Empire Railroad.

Dr. W. B. Palamountain, who has practiced in Colfax for fifteen years, has moved to Oakland, Calif., where he lived before moving to Colfax.

Dr. T. T. Robson, formerly of Billings, Mont., has located for practice at Bremerton.

Dr. C. H. Soll, who formerly practiced at Monroe, moved to Bend, Ore., a year ago. Last month he returned for practice to Monroe.

Dr. C. C. Benedict, of Enumclaw, has moved from that city and located for practice at Davenport.

Dr. R. A. Walton, of Spokane, has moved to Pomeroy, where he will locate for practice.

Dr. R. E. Elvins has moved from Burien City to Spokane.

Dr. E. N. Layton, of Great Falls, Mont., has moved to Colfax for practice.

IDAHO.

County Hospital Assured. Plans have been made for construction of County Hospital in Weiser during the coming year. Thru public donation and county funds an amount of $75,000 will be utilized for this purpose. Lack of hospital facilities in this section is very marked.

OBITUARIES.

Dr. R. A. Gove, of Tacoma, Wash., died Jan. 21, after an illness of three months. He was 64 years old, born in Vermont He located in Tacoma twenty years ago, coming there from Minnesota. He was prominent in Masonic circles, having been Grand Master of the Grand Lodge in Minnesota and Past Grand Master of Washington. He was elected as a member of the Tacoma city council in 1892 and served for four years. He was six years a member of the State Board of Medical Examiners and for twelve years was secretary of the Pierce County Medical Society. He was highly esteeemd both by the medical profession and the public.

Dr. F. A. Bailey died at Hillsboro,, Ore., Jan. 23, after a week's illness of pneumonia. He was born in 1839 in Tennessee. After attending Lebanon College in that state, he studied medicine in St. Louis. During the Civil War he served in the Confederate Army as a medical cadet in hospital service. In 1864 he was appointed physician on one of the Hudson Bay company steamers, running up the Missouri river. He proceeded overland, reaching Hillsboro in 1864. He began teaching school in Scoggins Valley, at the same time practicing medicine. He continued practice continuously until the time of his death. He was twice president of the State Medical Association. He served many times as mayor of Hillsboro. At one time he was urged to accept the nomination for governor but declined on the ground that he could not leave his profession for four years. He was a public speaker of marked ability and during the war he served as one of the four-minute men, speaking in theatres. He served continuously as president of the Hillsboro Public Library, whose existence was chiefly due to his efforts.

Dr. J. A. Young, of Caldwell, Ida., met death by drowning January 20, while returning home from a call. He drove his car onto a ferry, the floor of which was covered with ice. The car skidded, breaking the chain at the front of the ferry and plunged into the river. Altho the car was closed, he escaped from it into the river but could not be saved. He settled in Caldwell in 1905 and in 1911 moved to Weiser, where he founded the Young Hospital. He returned to Caldwell in 1918. He was a prominent physician of that part of the state and interested in civic affairs. He served on the city council and had been a member of the school board.

Dr. J. M. Guthrie, of Corvallis, Ore., died Jan. 24, after a short illness. He was 73 years of age. He settled in Corvallis sixteen years ago, moving there from Payette, Ida.

COMMUNICATION

COMMUNICABLE DISEASES IN WASHINGTON.

> "No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring."

TO THE PHYSICIANS
of the
STATE OF WASHINGTON.

Dear Sirs:

The following tabulation shows the amount of communicable disease which has existed in the State of Washington during the past calendar year, as indicated by the reports received by the Washington State Department of Health:

Smallpox	4390	Whooping Cough	1260
Venereal Diseases	3816	Tuberculosis	1059
Chickenpox	2747	Pneumonia	1040
Mumps	2680	Diphtheria	1003
Scarlet Fever	2483	Typhoid Fever	379
Measles	1894	German Measles	148
Spinal Meningitis	28	Anterior Polio	12
Influenza	Not given		

It will be observed that smallpox heads the list with 4,390 cases reported. The state has been subjected to a sharp epidemic of this disease during the past year. In 1915 there were only 247 cases. This epidemic is due primarily to the failure of the people to protect themselves by vaccination.

You will please note that the second on this list is venereal diseases with 3,816 cases reported, of which 2,772 were gonorrhea, 1,009 syphilis, and 35 chancroid. During the past six months 2,119 v. d. cases have been reported, and if the present rate of reports of v. d. cases continues, as for the past three months, the total for this year will be somewhere between five and six thousand. Gonorrhea alone leads all infectious diseases in the state except flu and smallpox. Reported syphilis ranks with whooping cough, tuberculosis, pneumonia and diphtheria, all of which range about the one thousand mark of reported cases. Practically every state in the union requires venereal disease cases to be reported. Up to the present this procedure has been a success, and is becoming more and more popular with the profession. Reports are coming with regularity and in increasing volume. As a public health measure it has passed the experimental stage, and is an assured success. The members of the profession are conservative, but we note with pleasure that one by one they are "getting the habit," and are lining up with those who conscientiously report all infections coming under their observations.

Why should physicians report v. d. cases? First, it is the law of the State. Second, no one realizes the necessity for establishing a proper control of venereal disease more than members of the profession. Every doctor knows that thousands of innocent persons are victims of syphilis yearly; that thousands of children are brought into this world with a mortgage on both mind and body. The majority of these unhappy victims die before they reach the age of fifteen, after a most miserable and pitiable existence. If perchance they survive, you have abundant experience and knowledge to forecast with considerable certainty their unhappy fate. Pain, and suffering and sorrow will be their lot until outraged nature wipes the slate clean by a process of elimination.

Help us in our efforts to serve the people.

Respectfully,

W. M. Van Patten

A. A. Surgeon, U. S. P. H. S. Director—Div. Venereal Diseases.

Seattle, Wash.,
Feb. 3, 1920.

BOOK REVIEWS

Modern Surgery: General and Operative. By J. Chalmers DaCosta, M.D., Samuel D. Gross Professor of Surgery, Jefferson Medical College, Philadelphia, Pa. Eighth Edition, Revised, Enlarged and Reset. Octavo of 1697 pages, with 1177 illustrations, some of them in colors. Philadelphia and London: W. B. Saunders Company, 1919. Cloth, $8.00 net.

This is the leading one-volume text-book in this country on surgery covering the whole subject. The preface is most unusual and amusing in the eighth edition, which is composed largely of literary quotations to illuminate the author's views. Thus he is between the devil and the deep sea in his desire to present all the latest progress but to avoid newer methods which are of uncertain value. When reading some articles the author feels like Huckleberry Finn in reading Pilgrim's progress. "The statements was interesting but tough." The section on venereal diseases was revised by Dr. B. A. Thomas, but DaCosta says he filed the manuscript away so carefully that he has never been able to find it since. The war greatly interfered with an orderly revision of the work and the book was partly written on shipboard.

The war afforded an enormous experience in tetanus and DaCosta quotes the British authorities as finding neither magnesium sulphate nor Baceili's treatment of much avail in treatment, but antitoxin, given intraspinally, of some value. Three prophylactic doses of antitoxin were given to all wounded at week intervals. The newer methods of treating infections, head and chest injuries, and compound fractures are introduced, but a book of this sort covering the whole domain of surgery may sketch only the principles of treatment. Special articles by different collaborators have been included in the book on the following subjects: Transfusion, bronchoscopy and esophagoscopy, orthopedic surgery, the Barany test, electrical injuries and a section on x-rays, by Pfahler.

There is an enormous amount of classified, digested and appraised information in this volume in fine print and approaching two thousand pages. The only criticism which the reviewer has the temerity to suggest is that in the gradual growth of the book some of the older parts have died a natural death and might be advantageously sacrificed to the pruning knife, or relegated to their now relative unimportance. The work is monumental both in scope and as a fitting memorial of the author's distinguished ability and indefatigable labors.

Winslow

Syphilis. A Treatise on Etiology, Pathology, Diagnosis, Prophylaxis, and Treatment. By Henry H. Hazen, A. B., M. D. Professor of Dermatology and Syphilology, Medical Department of Georgetown University, etc. 160 illustrations and 16 colored plates. Cloth Pp. 647 $6.00. C. V. Mosby Co., St. Louis. 1919.

To the making of this book some fourteen specialists have contributed. The work is admirable in its broad vision and scope, and practically covers the whole domain of medicine. It has been well said that he who knows thoroly syphilis and tuberculosis knows medicine. The bibliography at the end of each chapter is enormous, and evidently the greater part of the best and most recent literature has been consulted and is quoted in substantiating the tenets of the author. It is shown that there may be no initial lesions whatsoever in many cases, and absence of secondary lesions in more. Also that certain strains of T. pallidum have special affinity for certain parts of the body, as the nervous system. Only from 1 to 4 per cent of paretics and tabetics give any history of cutaneous lesions. There has been a great difference of opinion as to the prevalence of syphilis, even by those doing autopsies, but Warthin has found evidences of syphilis in 300 bodies out of a total of 750 autopsies. It is noted that multiple chancres are not rare; that syphilis is probably a much more common cause of chronic pancreatitis and diabetes than is usually held; that direct infection from a syphilitic of twenty years standing has happened in more than one case. Aortic insufficiency in the young is stated to be usually specific, altho this statement is perhaps a little too strong, for rheumatic aortic lesions are far from rare. Syphilis is responsible for many cases of heart block and Raynaud's disease.

The chapter on the interpretation of the Wassermann test, by Craig, is of great interest and deduced from its use in enormous numbers of soldiers. Craig demonstrates that the test varies greatly on different days from four plus to two plus, or even negative, in syphilitics and that therefore single negative tests are of little value. A four plus reaction he considers absolutely diagnostic of syphilis, even tho history and symptoms be absent, providing other diseases giving a positive Wassermann test may be excluded. These are not noted. A two or three plus reaction is regarded as diagnostic only if there is a history of infection or symptoms. The variations in intensity of reaction depend upon variation in complement inhibiting substances. The chapter on treatment is excellent. Altogether a thoro progressive, reliable and valuable book, and a distinct contribution to literature, of which both the author and publisher may be proud.

Winslow

The Narcotic Drug Problem. By Ernest S. Bishop, M.D., F. A. C. P. Clinical Professor of Medicine, New York Polyclinic Medical School, etc. Cloth 151 Pp. The Macmillan Co. New York. 1920.

The writer sets forth some original ideas and methods of caring for drug addicts on long and large experience. He formerly believed that addicts were all unreliable and untruthful and that the addict could get along without the drug if he had only the will and desire to do so. Now he considers the drug habit a disease and that addicts show the same difference in character which is seen in normal persons. The continuance of the habit is due to absolute need of the body for the drug. Treatment is based on giving the minimum quantity of the drug required, to escape the symptoms of the diseases, at as long intervals as possible. If 3 grains of morphine are required in twenty-four hours to preserve drug balance a patient may continue indefinitely in perfect health, if he takes this amount in two or three doses. The time for final withdrawal depends upon the physical condition of the patient and other conditions elaborated in the book. The author is wholly opposed to the current methods of treating drug addiction with other drugs and violent purging. A useful volume and well worth reading. WINSLOW.

The Medical Treatment of Cancer. By L. Duncan Bulkley A. M., M. D. Senior physician to the New York Skin and Cancer Hospital, etc. Cloth 386 Pp. F. A. Davis and Co., Philadelphia, $2.75. 1919.

Several volumes on the same subject and by the same author have been noticed in these columns. Bulkley's view of cancer, as due to disturbances of metabolism, is well known. In this volume there is a collection of lectures on the subject, in which he affirms that cancer is chiefly caused by a diet too rich in animal proteids and that prevention and to a certain extent cure may be attained by giving patients a vegetable dietary consisting of some 2100 calories and 150 of vegetable protein. Together with this he strongly advises potassium acetate in 15 to 30 grain doses t. i. d. He affirms that cancer does not exist among peoples of the Far East, who live on rice and a vegetable dietary, but quickly appears among them when they adopt the meat diet of Europeans. The cases reported in the back of the book do not appeal to one very strongly as endorsement of the treatment, so far as cure is concerned, altho in many the disease appears to have been somewhat ameliorated by treatment. The outdoor life in cancer, as for tuberculosis, altho apparently not mentioned in this book, has also surprisingly prolonged life for years in well authenticated cases.

WINSLOW

Surgical Clinics of Chicago. Oct. 1919 Vol. III No. 5 Published Bi-Monthly. W. B. Saunders Co., Philadelphia and London.

Among the many interesting contributions to this number, the first by Eisendrath on tumors, and—especially cystic tumors—of the kidney is of great value. A very complete discussion of the subject is given with etiology, pathology, differential diagnosis, symptoms and treatment of renal tumors and cysts. In diagnosis the inflation of colon and pyelography are of assistance to show the subperitoneal site of the growth, and irregularities and distortion of the renal pelvis. X-ray of bones is useful in hypernephroma, and of the lungs in malig-

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ELIZABETH RICHARDSON, Assistant Superintendent

611 LOVEJOY ST., PORTLAND, OREGON.

nant renal tumors, to find metastases. Bevan discusses three abdominal tumors and notes the value of the x-ray to differentiate between uterine fibroma and pregnancy. In one case, even after opening the abdomen, the tumor in a young single woman so closely simulated pregnancy that the belly was closed to allow the case to go to full term, and after three months the belly was opened again and, despite the protests of an obstetrician, the tumor was removed and a soft intramural fibroid was discovered on section. The difficulty of bimanual examination led to etherization in another case of a supposedly pregnant woman and everything became normal in the presence (or disappearance) of a phantom tumor. Speed, in a talk on the surgical management of duodenal ulcer, is of the opinion that routine closure of the pylorus in healthy subjects, by completely separating it from the duodenum, should be the rule in duodenal ulcer, to avoid lighting up the old trouble by food going thru both pylorus and stoma. He exhibited a patient in whom, with perfect patency of the gastroenterostomy stoma, the food was going thru the pylorus and all the old symptoms had returned. He operated with success by closing the pylorus. He notes the use of three ounces of methylene blue solution, given by the mouth before operation for perforation of duodenal ulcer, to enable one to quickly discover the site of perforation—which was used in the case demonstrated. An unusually good number of these most valuable publications.

WINSLOW

Progressive Medicine Vol. XXII, No. 3, Sept., 1919. Paper. $6.00 per annum. Lea & Febiger. Philadelphia and New York.

In this number are included sections on the heart, lungs and blood vessels, by Ewart; dermatology and syphilis, by Gottheil; obstetrics, by Davis; and diseases of the nervous system, by Spiller. Spiller reviews recent literature on encephalitis, especially that from English sources. Encephalitis differs from poliomyelitis in its age incidence, seasonal prevalence, course, duration and fatality and is a disease sui generis. Ophalmoplegia is present in 75 per cent. of cases. In England, in 168 cases, there were 37 deaths. Thru Herrick's clinical reports it has been shown that acute cerebrospinal meningitis begins as a blood stream infection and 45 per cent. were recognized before meningitis developed, which occurs usually within forty-eight hours and in one case not for two weeks. In a case seen recently by the reviewer almost a week elapsed. The blood cultures are positive in about one-third of the cases, and a high leucocyte count favors the diagnosis.

There is a most interesting review of cardiac diseases as deducted by war experience in Ewart's section. The severity of the various lesions, with their comparative expectations for permanent disability, have been demonstrated as never before. Mitral regurgitation does not necessarily disable at all and diagnosis is uncertain. Only when the heart is enlarged, when the reaction to exercise is abnormal, when a history of acute rheumatism is obtained, or fibrillation or associated aortic lesions are present, is disability probable. It is most instructive to find that aortic regurgitation in men, between 18 and 41, was due to rheumatism or strain, and not to syphilis. Space does not permit us to note more of the innumerable topics of value in this invaluable publication.

WINSLOW.

Psychiatric-Neurologic Examination Methods. With Special Reference to the Significance of Signs and Symptoms. By Dr. August Wimmer, Director of San Hans Hospital, Denmark. Cloth 177 Pp. $2.00. C. V. Mosby Co. St. Louis. 1919.

This is a book belonging to the working library of those who have occasion to be interested in psychiatric and neurologic examinations. It is a well made translation of the compendium of Dr. Wimmer, of Denmark. Such information as is given here can be found in the larger text-books, but it is of practical convenience to have this separately covered, and put in chapters that may be readily reviewed, or used in reference. The definitions are well put and the explanations simply made, so that the average man will read this book easily without a dictionary.

GULICK.

The Woman of Forty. By Edith B. Lowry, M.D. Cloth 202 Pp. $1.25. Forbes & Co. Chicago. 1919.

This little work, intended for the layman, is in the way of giving homely and sensible advice as to the hygiene of living at and after middle age, together with hints as to work, social relations and the right way of living. It appears to be a worthwhile volume.

Food For the Sick and the Well. How to Select It and How to Cook It. By Margaret P. Thompson, Registered Nurse. Cloth, ix+82 pages. Price $1.00. Yonkers-on-Hudson, New York. World Book Company.

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ORIGINAL CONTRIBUTIONS

THE TECHNIQUE OF WHOLE BLOOD TRANSFUSIONS AND ITS VALUE IN ASSOCIATION WITH SURGICAL PROCEDURES IN THE TREATMENT OF PERNICIOUS AND OTHER SEVERE ANEMIAS.*

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The transfusion of blood as a practical procedure is a comparatively new acquisition in the field of surgery. The idea of using blood as a therapeutic measure, however, dates back to the fifteenth century. The results from its early use were so unsatisfactory and dangerous that the procedure fell into great disfavor.

The failure of this early transfusion work was probably due to two main factors: first, the attempt was made before the days of aseptic technique; and , second, because of the lack of knowledge of the incompatibility of various bloods with each other.

Recently because of the increased interest in the possibilities of transfusion, many methods of transfusing blood have been devised, making transfusion practical. With the development of these various methods, the various factors responsible for the untoward symptoms following transfusion have been eliminated, and as a result, transfusion of blood, in the hands of an experienced operator, can be done with very little or no danger to either the donor or the recipient of the blood.

Blood transfusion is indicated as a surgical therapeutic measure whenever all or part of the elements of the blood tissue are needed and cannot be obtained in sufficient amounts from the hematopoietic organs. These elements may be required (a) to replace loss of whole blood; (b) to increase coagulability; (c) to stimulate the hematopoietic organs, and (d) to stimulate resistance to infection and various other toxic processes.

It is a well known fact that the administration of normal salt solution or the various modifications of Ringer's solution, either intravenously or subcutaneously, has marked beneficial effect in certain conditions where more fluid is needed that cannot be ingested by any other means. By this form of treatment, then, one can hope only to give an increased amount of body fluid. On the other hand, by transfusing whole blood one injects a living tissue which has functions inherent in its own constituents, and which thereby serves an entirely different purpose.

The superiority of the usefulness of blood transfusion over all solutions in the treatment of hemorrhage and shock was very forcibly demonstrated in France during the World War. The use of salt solution in these cases was of value in many patients, but its sustaining power was not great, because it rapidly passes out of the blood vessels into the surrounding tissues by osmosis. An attempt was made to find a solution which could be safely introduced into the circulation and which would not pass rapidly from the vessels, thus keeping up the blood pressure for a longer period than the various solutions ordinarily used for this purpose. This resulted in the intravenous use of a 5 per cent. gum acacia solution which has the same viscosity as that of the blood. There is no doubt that this solution remains in the circulation a longer time than salt solution, but its results proved to be disappointing. In the cases of severe shock there is an oxygen starvation of the tissues and this want can only be supplied by a circulating medium which has oxygen carrying properties, and which will remain in the circulation. Blood is the only medium possessing these properties and consequently is the only one that has real sustaining power.

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*Read before the Twenty-fifth Annual Meeting of Utah State Medical Association, Salt Lake City, Utah, Sept. 9-10, 1919.

It was noted that in many cases in which shock had been present for many hours, there would be no reaction following the use of gum salt solution, and in some of these cases the blood pressure not only failed to rise but actually fell, apparently hastening a fatal termination. From these observations it would seem that, in cases of shock, if used early, gum solution may be of more value than salt solution, but in late cases of shock its use is absolutely contraindicated. The use of blood in war injuries has demonstrated conclusively that there is nothing that will take the place of blood in cases of hemorrhage or shock which have passed the limits of safety.

When blood transfusion was first exploited it was used, as is usually the case, in many conditions in which it had no effect or even did harm. At present, however, we know that in many instances the addition of fresh, living, whole blood to a patient from another individual may save a life, cure the pathologic condition present, or at least greatly improve the patient.

The indications which from our experience are those best suited to this form of treatment are as follows:

Hemorrhage. Severe hemorrhage is, of course, a specific indication for blood transfusion, and it is in these cases that the most brilliant results have been experienced. In postoperative, postpartum hemorrhage, in ruptured extrauterine pregnancy, in hemorrhage following abortions and miscarriages, in severe accident cases with loss of blood and with shock, and gastric ulcer bleeding, transfusion is especially indicated and successful. In fact, bleeding from any source which cannot be easily controlled by mechanical means is best controlled by transfusion of whole blood.

Nature attempts to control hemorrhage in two ways: (a) by producing a fall in blood pressure, and (b) by attempting to cause a clot at the end of the bleeding vessel. The supposition, however, that the rise in blood pressure following a blood transfusion will increase the hemorrhage seems to have no foundation. In bleeding from a gastric or duodenal ulcer, even when the hemorrhage is very severe, it will almost invariably cease immediately following the transfusion. It is in severe hemorrhage that large amounts, from 600 to 1500 cc. are given. The transfusion of amounts less than 600 cc. has not, in our experience, been sufficient to control such cases. We have also noted that amounts greater than 900 or 1000 cc. do not produce more satisfactory effects than the giving of 600 to 800 cc. and repeating one or more times. This amounts seems to be best suited both to replace the lost blood, and to favor clotting at the bleeding point.

Typhoid Fever. Early in transfusion work hemorrhage complicating typhoid fever was not considered as a condition in which blood transfusion was indicated. Recently, however, a number of typhoid cases complicated with hemorrhage have been transfused, in which the hemorrhage stopped immediately after transfusion of whole blood, following which the patients went on to complete recovery.

Icterus. Patients with obstruction of the common duct with long standing jaundice are extremely hazardous surgical risks. These patients do well for a couple of days following operation, then have some hemorrhage from the wound, not severe however, and then gradually weaken and just slip away without any special symptoms and without any apparent cause. Blood transfusion is indicated in these cases, if a surgical operation is performed, and will often tide the patient over an otherwise hopeless period.

During the past two years the reader has systematically transfused all cases of marked persistent icterus at time of operation, none of which have died from cholemia, while from past experience it was evident that some of these cases would have terminated fatally without the transfusion.

Secondary Anemia. In cases of persistent oozing of blood in small amounts from any part of the body, with a consequent drop in the blood picture, or in which there is constant destruction of circulatory elements from an infective or toxic process, blood transfusion has been found of great value. Amounts of 500 to 700 cc., repeated every six to ten days, do as much good as when larger amounts are used. The transfusion should be repeated until the blood picture is permanently improved. In the majority of cases, however, one transfusion of 700 cc. of whole blood will be sufficient to bring about the desired result. Conditions included in this class are: intestinal bleeding, epistaxis, pulmonary hemorrhage, hemorrhoids and hematuria from various causes.

Hemophilia. In this condition there is a greatly delayed coagulation time, so that small abrasions may allow of severe hemorrhage. Frequently the blood of these patients will fail to clot in an hour or more. Here blood transfusion may be employed during the active stage of bleeding, because enough prothrombin will in this way be supplied to produce the necessary clotting. At the same time the lost blood is being replaced by new blood elements. For this reason whole blood is a better medium than blood serum alone. If bleeding does not cease following the first transfusion, another donor should be selected and the transfusion repeated, as the second transfusion from a different donor may cause control of the hemorrhage at once. As far as I know, no explanation for this has ever been given, but the same observation has been made by different observers. Even after the bleeding has stopped, it is wise to give occasional prophylactic transfusions of 500 to 700 cc. of whole blood in order to supply the demand for prothrombin.

Occasionally one encounters a patient in whom, following a surgical operation, without any apparent cause, a secondary hemorrhage occurs from the wound after a period of from one to three weeks, and will keep recurring in spite of all the ordinary medicinal and surgical means at our command. Many of these cases in the past have terminated fatally. These cases usually do not give a history of hemophilia and, as far as I know, no reasonable explanation as to the cause has ever been given. An illustrative case will be more enlightening than anything I can say on the subject.

A woman, aged 48, in apparent good health, except for the usual symptoms from a lacerated perineum. Patient was taken to a hospital and a perineorraphy performed. A good immediate recovery followed and patient returned home at the end of two weeks. A few days later, which was eighteen days after operation, a severe hemorrhage occurred from the perineum. The hemorrhage was finally controlled by enlarging the opening in the perineum from which the blood was coming, and packing the area with gauze. Three days later, when packing was removed, a lively hemorrhage followed immediately. Packing was replaced and, as soon as could be arranged, the perineum was reopened and sutured. At this time patient was given coagulose. One week later hemorrhage recurred. Perineum was again partially opened and packed with gauze. During the following two weeks the packing was changed every three or four days, and each time active hemorrhage occurred. During this period coagulose was used, and also several doses of horse serum. Calcium chloride was also given and patient placed on a gelatin, white of egg and milk diet.

I saw her seven weeks after operation, at which time she had a pulse of 140, was extremely weak, had no appetite. temperature subnormal, hemoglobin 20 per cent., red count 1,200,000, white count 8,000. A donor was immediately selected and patient taken to operating room. Upon removing perineal packing a marked bleeding occurred, the blood being very watery-like. The principal part of the bleeding was controlled by suturing the perineum, but in spite of the fact that round, not cutting, needles were used, slight bleeding came from around each suture, and it was impossible to control this oozing. As soon as the perineal wound was made as dry as possible, a transfusion of 900 cc. of blood was given. Within five minutes from this time the perineal wound was perfectly dry and the pulse had dropped from 150 to 110. Five days later a second transfusion of 700 cc. was given. There was absolutely no bleeding from the time of the first transfusion, wound healed primarily, patient made a rapid convalescence and left the hospital at the end of three weeks, with a red count of over 4,000,000 and has been in perfect health ever since. I believe this case would have terminated fatally in spite of anything that could have been done, had not the blood transfusion been given.

Hemophilia Neonatorum. The treatment of this condition by blood transfusion has been successful in a large number of instances, and the lives of many infants have been saved. The real cause for bleeding in these infants is unknown. Whatever is lacking in the composition of the blood in these cases is supplied by the addition of whole blood, as a single blood transfusion not only stops the bleeding immediately but apparently cures the patient permanently. Formerly it was thought that the mother's blood would not be suitable in these cases. Experience has demonstrated that it is not only suitable, but it is preferable, as it is always compatible and can be used without making any agglutination tests. There is, of course, some difficulty at times in using the veins of infants, and for this reason Helmholz has recently devised a method which has been used in many cases. He punctures the anterior fontanelle in the midline and so enters the superior longitudinal sinus which is a relatively large vessel in infants.

Toxemia. In toxemia from any cause, or where there is a condition of general debility due to disease or metabolic derangement, blood transfusion has proven of marked benefit in many cases.

Septicemia. We have seen several cases of severe septicemia following pelvic cellulitis, postpartum infection, and peritonitis, in which the process has gone on to a practically hopeless stage, and in which blood transfusion was resorted to as a last measure. Several of these cases were definitely improved, and a few of them recovered. It would seem that in such instances the resistance of the patient was just insufficient to combat the disease. By the administration of whole blood new antibodies and fresh cells were furnished, which became the added stimulus necessary to give the resisting process the upper hand. We believe septicemia, bacteremia, and toxemia to be favorable indications for blood transfusion.

Acute Surgical Shock. Cases in which it is known that a severe operation is necessary, such as in carcinoma of the intestines, and in which there is a marked cachexia and general weakness, can often be improved in a general way to such an extent that the danger of surgical shock is markedly decreased. One, two or three blood transfusions of 500 to 700 cc., given a week apart before the operation, will sometimes make an otherwise hopeless condition a fairly good surgical risk. Likewise, after a long, tedious, severe operation, the administration of a pint of whole blood just after the operation is finished, and while the last stitches are being applied, will make a change that is often quite remarkable. A marked improvement of the general condition of the patient is evidenced by a better surface color, a strengthening of the heart action, and drop in the pulse rate of from 30 to 50 beats per minute.

Illuminating Gas Poisoning. In illuminating gas poisoning there is a permanent destruction of the hemoglobin in the red cells, as far as the oxygen-carbondioxide carrying capacity is concerned. In such cases the transfusion of whole blood, adding enormous numbers of red cells with fresh hemoglobin, has in several instances saved the lives of individuals that would otherwise probably have gone on to the fatal termination.

Anemia Complicating Gestation. When that rare type of anemia which occasionally accompanies gestation, simulating very much a pernicious anemia, continues to progress after delivery, blood transfusion is indicated and will bring about a rapid recovery.

Splenomyelogenous Leukemia. Blood transfusions have not proved to be of any benefit as far as the leukemia is concerned. If, however, the leukemia is accompanied by a severe anemia, a marked general improvement will follow a series of blood transfusions. The leukemia will be greatly benefited temporarily by the use of x-ray or radium. In fact early in the disease the white count can be reduced to practically normal for a short time with a corresponding improvement of the patient's general condition.

It is still an unsettled question as to the advisability of removing the spleen in this disease. If such a procedure is contemplated, the white count should first be reduced by radium or x-ray, as splenectomy in the presence of a high leucocyte count is extremely hazardous, but after the white count has been reduced to under 20,000, it is comparatively safe procedure.

Banti's Disease and Hemolytic Icterus. These conditions are essentially surgical and blood transfusion is not indicated, where the blood picture is not materially lowered. When, however, the red cell count is lower than 2,500,000, or there are persistent hemorrhages, blood transfusion should be resorted to as a preliminary treatment to splenectomy. The latter procedure offers the only hope of a permanent abatement, but the previous administration of new blood usually allows of a better surgical risk. If the spleen is removed early, the immediate and ultimate prognosis is very good in both Banti's disease and hemolytic icterus. Therefore, splenectomy is indicated in these conditions as soon as the diagnosis can be made.

Pernicious Anemia. The transfusion of blood in pernicious anemia has recently received a great deal of attention and has been advocated by some as the sole means of treating this form of anemia. Others have advocated splenectomy as a means of treating this disease. The results from both have been rather disappointing.

In view of the theory that pernicious anemia is in all probability a disease of infectious origin, it is evident that some further attempt should be made to relieve this condition than mere removal of the spleen. Even at this time very little is known about pernicious anemia. The word, pernicious anemia, is an artificial and arbitrary term, meaning the final degree of viciousness in anemia.

The fact that in pernicious anemia there is usually found a hyperplasia of the bone-marrow, and in the blood many embryonal red cells, would indicate that the blood-producing organs are producing cells at an increased rate. This increased production does not compensate for the destruction that is going on; therefore, there must be a hyperactivity in some way of the blood-destroying organs. The various blast cells present in the blood represent the reserve currency of the bone-marrow and indicate that the demand for erythrocytes is so imperative that the marrow, being robbed of its finished cells, throws off the parent form, the erythroblasts. The degree of embarassment of the marrow is probably indicated by the type of blast found in the circulating blood; the more primitive nucleated cell, the greater the embarassment of the marrow. In some late severe cases no nucleated cells may be seen whatever, indicating that the marrow, the constructive agent, has become exhausted and conquered by the destructive agent, whatever that may be.

From this it would seem that pernicious anemia should be classed as a hemolytic anemia; that is, among those in whom there is a marked increase in blood destruction making a pathologically increased demand upon the blood-producing organs.

While the factor regulating the production and destruction of blood-cells thus maintaining a normal balance is unknown, most observers agree that the spleen is the organ primarily responsible for the destruction of the worn-out red cells. While there is very little definitely known concerning the function of the spleen, still it is evident that it does not have an important internal secretion, for its removal does not deprive the body of any important constituent and does not subsequently jeopardize the life or comfort of the individual. There are numerous reports in which, in case of injury to spleen, a splenectomy has been necessary, and after the lapse of many years the patient has apparently suffered no ill effects therefrom. It is possible that after removal of the spleen its function is taken up by other organs, especially the lymphatic and hemolymph glands. It has been noted by some observers that the thymus enlarges after splenectomy.

It is a clinical fact that in the majority of patients suffering from infectious diseases the spleen is enlarged, often to the extent of being palpable. The significance of this enlargement is unknown, but it has been suggested that the spleen, with the other lymphatic structures, acts as a barrier, thus protecting the body against microorganisms and their products. It has also been suggested that after splenectomy patients are more susceptible to the current infectious diseases. It is doubtful whether or not this be true. It has frequently been observed that the resistance against infectious diseases, once they are contracted, is not evidently affected by splenectomy. One of the reader's patients, who had been splenectomized seven years previously, contracted pneumonia. The disease terminated favorably in the usual manner. Another patient whose spleen had been removed six months previously contracted typhoid fever, running a typical course of the disease, making fully as rapid a recovery as the ordinary case.

Notwithstanding the fact that an immense amount of research work has been done concerning the physiology and function of the spleen, one is impressed with the confusion that still exists. Very little has been attained that would aid us in determining the course of treatment in diseases apparently due to abnormal functioning of the spleen. We still must depend mainly upon clinical observations to guide us in the procedures to be followed in these cases.

In 1913 three investigators, Eppinger[1], DeCostello[2], and Klemperer[3], working independently of each other, all applied the operation of splenectomy as a means of treating pernicious anemia. In view of the fact that the medical management has been followed by such unfavorable ultimate results, it is not surprising that the procedure has been undertaken in a great many cases.

Just what the infective agent or toxin of pernicious anemia many be is still a matter of much speculation. Moffit[4] believes that this agent may act differently at different times, or that there may be several hemolytic poisons and that there may be splenic, hemolymphatic or marrow hemolysis. It is possible, however, that instead of there being several hemolytic poisons to account for the various clinical pictures of pernicious anemia, there may be a common toxin or agent at work which may, like the spirocheta, have a predilection for certain tissues in different individuals, attacking the nervous system early in some, running a rapid course, while in others it attacks other organs, assuming an entirely different clinical picture.

The fact that the removal of the spleen brings about a marked reduction in the blood destroyed would indicate that the increased blood destruction occurring in pernicious anemia is in some way associated with an abnormal functioning of the spleen. Robertson[5], in studying the blood destruction in pernicious anemia before and after splenectomy, found that the greatly increased hemolysis present before operation showed a constant and marked decrease afterward, reaching normal in all but two or three cases.

While the etiology and pathogenesis of pernicious anemia is still a perplexing problem, it seems evident that, besides a condition of increased hemolysis, there is some toxic action on the bone-marrow. From our study of these cases we have been impressed with the value of the observations of Hunter[6] with respect to the toxic, or even infectious nature of the disease. The question is, what is the source and nature of this infection? Early in our work, in studying two cases of pernicious anemia, we noted that the symptoms of a chronic cholecystitis were a prominent feature and had existed for a long time previous to the anemic symptoms. This existence of an infected gall-bladder was demonstrated later in both cases when the gall-bladder was drained. Since then every case has been studied for the existence of a chronic infection, and in practically every one infective foci were demonstrable. The regions in which foci were found were the gall-bladder, the appendix, the intestines, the mouth and throat. In 90 per cent. of cases, chronic cholecystitis with or without stones was present; 80 per cent. of which also presented evidence of previous inflammation of the appendix, and 25 per cent. of this group also had marked infection in or about the teeth, and 15 per cent. had infected tonsils; 20 per cent. had marked evidence of a subacute infection in the appendix.

Recently a bacteriologic study of the various specimens removed at the time of operation was attempted, with the result that in every case, except one, microorganisms have been grown from one or more of the organs removed. From nine cases of pernicious anemia operated upon, all of the specimens removed were sent to the Laboratory of Clinical Research of the Sprague Memorial Institute for bacteriologic study. The report on the specimens follows:

Case 1. Specimens examined—spleen, gall-bladder and appendix. The hemolytic streptococcus and streptococcus virdens were grown from the appendix. No growth from spleen or gall-bladder.

Case 2. Specimens examined—spleen, gall-bladder and appendix. The hemolytic streptococcus and colon bacillus were grown from the spleen. The hemolytic streptococcus and streptococcus viridens from the appendix. No growth from gall-bladder.

Case 3. Specimens examined—spleen and gall-bladder. Appendix had been previously removed. The colon bacillus was grown from the gall-bladder. No growth from spleen.

Case 4. Specimen examined—spleen. The appendix had been previously removed and the gall-bladder was pronounced negative at time of operation. No growth obtained from spleen.

Case 5. Specimens examined—spleen, gall-bladder and appendix. Hemolytic streptococcus was grown from spleen. The hemolytic streptococcus and streptococcus viridens from the appendix. No growth from gall-bladder.

Case 6. Specimens examined—spleen, gall-bladder and appendix. The colon bacillus was grown from the gall-bladder. The hemolytic streptococcus from the appendix. No growth from spleen.

Case 7. Specimens examined—spleen, gall-bladder and appendix. The staphylococcus albus was grown from the spleen. The colon bacillus and hemolytic streptococcus from the gall-bladder. No growth from appendix.

Case 8. Specimens examined—spleen, gall-bladder and appendix. No growth from spleen. Hemolytic streptococcus was grown from appendix. Hemolytic streptococcus and colon bacillus from gall-bladder.

Case 9. Specimens examined—spleen, gall-bladder and appendix. Spleen and gall-bladder were negative. The hemolytic streptococcus and streptococcus viridens were grown from the appendix.

In the 9 cases of pernicious anemia bacteria were grown from 3 of the 9 spleens removed, from 4 of the 7 gall-bladders removed, and from 6 of the 7 appendices removed. The only case not giving a bacteriologic growth was the one in which the spleen was the only specimen removed, the appendix having been previously removed. This patient had had a long-standing pyorrhea, for the relief of which a number of teeth had been extracted. No culture was made from the mouth.

The predominating microorganism found was the hemolytic streptococcus, being obtained in 7 of the 9 cases, the colon bacillus in 5, the streptococcus viridens in 4, the staphylococcus albus in one.

The spleens removed have shown evidence of a chronic splenitis and usually perisplenitis, indicating that a toxic or infective process had been present there. While it is impossible at the present time to state anything definite concerning the relation of these various infections to pernicious anemia, it is certainly an interesting observation from the standpoint of both etiology and treatment.

In view of the fact that pernicious anemia is, in all probability, a disease of infectious origin, and that the spleen has an abnormal hemolytic action on the blood elements, with a late bone-marrow exhaustion, we have been more and more firmly convinced that the rational treatment consits in three main factors, viz: (a) massive step-ladder transfusions of the whole blood; (b) splenectomy and (c) removal of all possible sources of infection.

Each of these steps play an important part in the treatment. The repeated blood transfusions nourish and stimulate the bone-marrow to action and help to restore the secondary changes in the various organs; the splenectomy unquestionably reduces the amount of blood destruction; and the removal of the various foci of infection relieves the patient of a chronic toxemia and possibly of an etiologic factor of the disease.

In analyzing the various patients who have been splenectomized, it is evident that certain cases are unsuitable for operation. The degree of anemia present is of less importance in determining whether or not operation should be done than are the clinical manifestations of the disease. Patients showing nervous or mental symptoms or evidence of pathologic changes in the spinal cord should not be considered as surgical. While in these cases the blood picture will often be improved for a considerable time, it does not seem to interrupt the degeneration that is taking place in the spinal cord and central nervous system.

Splenectomy is not indicated in the so-called aplastic type of pernicious anemia. These cases do not do well with any form of treatment. Splenectomy should not be attempted during an exacerbation of the disease, especially if this be accompanied by a severe diarrhea which is often the case. In the majority of cases, however, by a series of blood transfusions, the exacerbation can be rapidly changed, so that in three to five weeks the case will be suitable for operation. Patients with temperature, recent hemorrhage or purpuric eruption should not be operated upon unless these symptoms disappear following a series of blood transfusions.

Operation should be considered in all other patients as soon as a positive diagnosis of pernicious anemia is made, and as soon as all conditions which might be a factor in producing anemia, which can independently be relieved, have been excluded. The employment of blood transfusion will result in marked temporary improvement in practically all cases, except those with marked cord or nerve involvment, and in the aplastic type.

Our experience has been that, while the blood pictures will improve immediately in practically all but the above type of cases, and that in some early cases a very prompt and marked remission will take place and may persist for a period of several months. On the other hand, in the late cases, the improvement in the blood pictures from transfusion alone is very transitory, as the blood will begin to decline within a period of two to three weeks, unless transfusion is repeated.

In all of our cases, except three, that have come to operation, transfusion has been used as a preliminary measure before operation. It has also been employed in several extreme cases simply as a measure of prolonging life for a short time.

During the past five years the reader has transfused more than one hundred patients suffering from pernicious anemia, including the sixty-nine patients who have come to operation, and a marked improvement both in the blood picture and clinical condition of the patient has resulted in all but five cases.

The immediate effects of transfusion are usually quite striking. The red blood count is increased, often doubling immediately if the count is very low; the hemoglobin percentage rises and the number of platelets is increased. The blast cells become more numerous and occasionally Howell's particles will appear in the blood, indicating a stimulation of the bone-marrow.

After transfusion the patients immediately, as a rule, volunteer the information that they feel stimulated and much "stronger than they felt before." A few hours later they become ravenously hungry, while previously food had to be forced upon them. This hunger and relish of their food persists even after the red blood count begins to fall, which usually takes place about ten days or two weeks later. With the improvement in the appetite, the mental symptoms grow better, the insomnia is relieved, and the glossitis clears up.

There is no doubt that the transfusion of large masses of whole blood accomplishes more than the mere mechanical addition of so much blood. It seems that it actually exerts either a curbing influence on the hyperactive spleen, or a stimulating action on the bone-marrow, since the blood picture continues to improve for several days after transfusion. This may be due to the fact that the blood-forming organs are not only overworked, but are also undernourished. Furthermore,, the multiple blood transfusions supply protective antibodies and assist the patient in getting rid of the secondary changes which have taken place in the various organs. During the period while the patient is being prepared for operation by multiple blood transfusions he should be treated in regard to any self-evident infection.

From the blood transfusion these patients become good surgical risks, and the abdominal operation can be done without greater shock than would be produced in any other patient by an operation of the same magnitude. At the time of operation a transfusion of from 600 to 1000 cc. of whole blood should be given immediately at the close of the operation.

While no surgeon can say that a cure has resulted from splenectomy or other surgical procedures in any case of pernicious anemia, still there is enough clinical evidence to show that the benefits derived from surgery are more than by any other means. This evidence, and the comparatively low operative mortality, together with the utter failure of other means to combat the progress of the disease, are all strong arguments for classing pernicious anemia as a surgical disease. But surgical treatment means more than merely splenectomy. The routine treatment which we have emphasized is: Mutiple massive transfusions of whole blood, eradication of all local foci of infection present, laparotomy for removal of the spleen and other pathologic organs, which usually means the gall-bladder and appendix.

(To be Concluded)

PARTIAL SPLENECTOMY. AN EXPERIMENTAL STUDY WITH REFERENCE TO ITS POSSIBLE APPLICATION IN THE TREATMENT OF HEMOLYTIC ANEMIAS.*

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and D. H. NICKSON, M.D.

SEATTLE, WASH.

In presenting the subject of partial splenectomy for your consideration, I do so with a degree of apologetic feeling, as my assumption is very largely theoretical and more or less speculative. However, it is offered in the hope that the discussion of the subject, which has occurred to me as an original idea, may prove of sufficient interest to be worthy of a share of your present attention. Suffice to say, I appreciate fully this inadequate scratching on the surface of a subject so vast, intricate and obscure as the purpose and function of the spleen. And yet I feel that there is herein embodied a principle which may throw even a little light upon those blood destroying diseases, hemolytic jaundices, Banti's disease, pernicious anemia, diseases in which fatal issue is more certain than even cancer itself and, if it should lend even a little light in the right direction, then apology is unnecessary.

In these hemolytic diseases, as the name suggests, we are dealing primarily with the destruction of blood cells. Then why not look to the commonly accepted source of such destructive processes and the chief place of lodgment, namely the spleen? Granted that this organ is the chief offender, in what better way may we arrive at the proper estimate of its function than by the process of eliminative reasoning by partial resection, in order to determine in what parts its relative functions persist? Have we not learned that a total resection of the thyroid means myxedema or tetany? Then, why, assuming a real and definite function as we must for the largest ductless gland of the body, should we remove the entire spleen in which we feel the seat of the trouble lies? Again, assuming that in the spleen is lodged the destruction of red cells, or in it are elaborated the toxins or whatever agents cause this hyperdestruction, giving to this state, if you please, the name hypersplenism, why not then attempt to correct it as we do hyperthyroidism and deal with it in a similar manner?

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*Read before the Thirtieth Annual Meeting of Washington State Medical Association, Spokane, Wash., Sept. 11-13, 1919.

In hyperthyroidism we have a symptom-complex, tachycardia, certain nervous symptoms, eye symptoms, etc. In hemolytic anemias we have marked red blood cell destruction, gastrointestinal symptoms and general weakness incidential to an impoverished blood stream.

In hyperthyroidism, partial thyroidectomy; in hyperspleenism why not partial splenectomy as the best remedy at hand?

From an embryologic standpoint the spleen is a highly developed lymphatic gland. Looked at from the viewpoint of physiologists there are several theories as to splenic function.

1. The spleen has been supposed to give rise to new red corpuscles. This it undoubtedly does during fetal life and shortly after birth and in some animals thruout life, but there is no reliable evidence that the function is retained in adult life or in most of the mammals.

2. It has been supposed to be an organ for the destruction of the red corpuscles. This view is founded chiefly on microscopic evidence, according to which certain large ameboid cells in the spleen inject and destroy the old red corpuscles, and partly upon the fact that the spleen tissue seems to be rich in an iron containing compound.

3. It has been suggested that the spleen is concerned in the production of uric acid. This, however, is more or less characteristic of lymphoid tissue in general.

4. Lastly, the spleen produces something, an enzyme, which when carried thru the blood to the pancreas, acts upon trypsinogen contained in this gland, converting it into trypsin.

Viewed from a circulatory standpoint, the splenic vein drains an area rich in metabolic end-products, receiving as it does tributaries from the left end of the stomach in the vasa brevia, left gastroepiploic, pancreatic branches from the pancreas, pancreatoduodenalis, and even the inferior mesenteric. Appreciating that these vessels must of necessity empty into some channel, yet may we not argue that a purposeful interest is herein likewise conserved, and that this arrangement is not haphazard? Perchance we may even conjecture that in the eddying currents of this venous channel a more intimate mixture of the various near end-products is thereby afforded, and that it is at this point that the splenic ferments cause a further splitting of the toxalbumenoid substances which have until now escaped.

The great importance of the glands of internal secretion is being emphasized more and more daily. We need merely to mention thyroid, suprarenals, pituitary glands and a whole series of symptom-complexes flit across our minds. And in this connection Sajous brings out most significantly the functional relationship between the pancreas and the spleen, mentioning the fact (after Shiff and Herzen) that the spleen supplies a ferment which, when added to the pancreatic juice, greatly increases its digestive energy. Shiff believed that the splenic substance played an important part in the genesis of the pancreatic proteolitic ferment, but Herzen attributed to it the function of converting trypsinogen into trypsin, the albumin-solving constituent of pancreatic juice.

Lepine also confirms Shiff's and Herzen's views by experiments in vitro and blood analyses. He found that a mixture of pancreas and spleen pulp in glycerine possessed far more active properties than pancreas alone similarly prepared. If we consider we have in the blood of the portal channels all the products of digestion and that trypsin is applied solely to albumenoid conversions and changes (Charles), the importance of the spleen's internal secretions will appear. (Note this with regard to explanation for gastrointestinal disturbances in anemias.)

Albumenoids, especially those ingested with food, are not the inoffensive bodies that they appear to be; indeed they constitute the foundation to some of the most dangerous substances that enter the organism, when their molecular structure undergoes certain changes. Also, in support of the contention of the feasibility, functionally, of partial removal of an organ apart from any function of the spleen in the direction mentioned, consider the pancreatic trypsin applied to the intestine, if we can judge by the manner in which a small remnant of the pancreas is in a state of advanced disease.

One-eleventh of the functional area of the adrenals suffices to sustain the oxidation processes. That the pancreas possesses four times more functional area than it absolutely needs has been experimentally demonstrated. With proper fresh, uncontaminated food a normal organism is practically invulnerable, so splendidly armed against any chemicophysical decomposition that the ingesta may undergo.

But these physiologic defences may be weakened thru general or local adynamia, that is, lowered

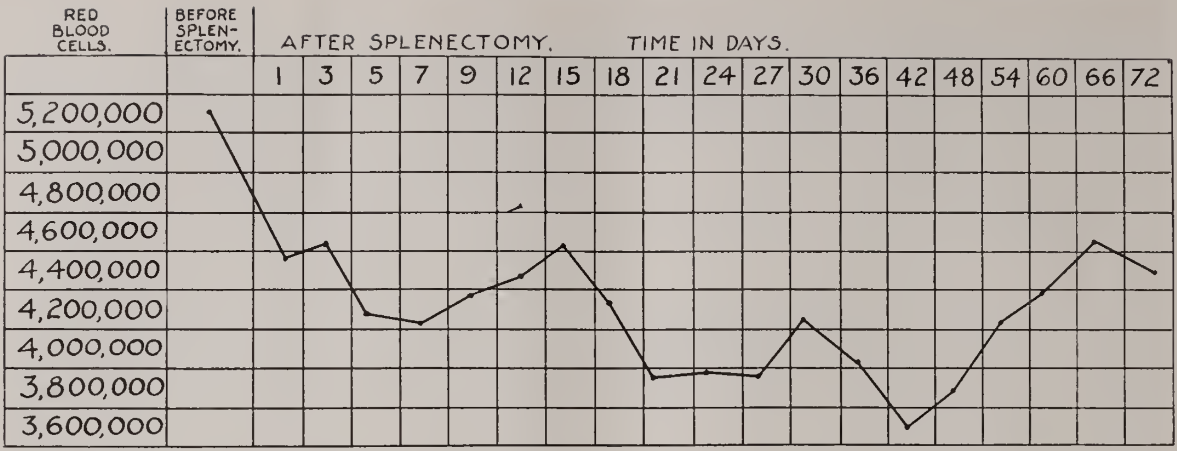

Fig. 1. Composite curve of seven dogs, after splenectomy, showing drop in count with gradual return to normal in 2½ to 3 months (latter not shown). Pearce, Krumbhaar and Frazier. P., 13.

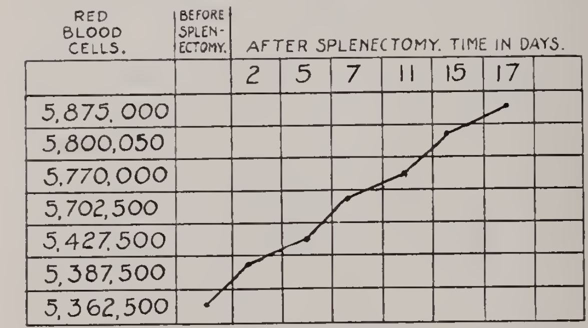

Fig. 2. Composite curve of red blood corpuscles in five dogs after partial splenectomy, showing definite immediate increase in count and distinct polycythemia.

oxidation processes; and peptones capable of yielding toxalbumins, leucomaines, ptomaines—all albumenoids—fail to undergo further splitting in the intestinal canal. Again, and under the same circumstances, notwithstanding the destructive action of the gastric and intestinal secretions, bacteria and their toxins may penetrate the debilitated villi and the portal circulation. The blood streams, furthermore, may be invaded thru the peripheral organs, not only by bacteria and their toxins, but also by vegetable poisons and venoms, all albumenoid substances, as previously emphasized. Even these do not represent all the sources of danger that a protective function, such as that represented by the pancreatic and splenic secretions, would have to meet were they, as I believe, mainly intended to fulfill such a mission.

May not these toxic albumenoids, so-called, have a destructive red cell specificity, accounting for the hemolytic anemias producing a selective action, as it were, with a given picture and all due to an impaired viciously active spleen? That is an open question.

Assuming that we have herein rational and sufficient grounds for my contention, we proceeded to experiment on dogs by doing a partial splenectomy in five dogs, removing the large tongue-like portion, amounting to three-fifths of the spleen.

The primary purpose was to determine whether or not it was a surgically feasible procedure. Is the hemorrhagic feature controllable and suture practicable?

Secondarily, to observe the blood pictures. Dr. Nickson, assistant professor of pathology at the University of Washington, made the blood counts at forty-eight hour intervals. We expected to find the usual picture, as described by Pearce, Krumbhaar, and Frazier in their experimental work in total splenectomy; namely, a so-called secondary anemia, characterized by its prompt onset, gradually increasing anemia and a slow return to normal in from two and a half to three months.

In the first instance we beheld a most unexpected blood picture—an increase over the normal which climbed gradually from 5,000,000 up to 5,600,000. However, we thought it was purely accidental and dismissed it from our minds until a like picture was again presented in the next and succeeding animals operated upon. An increased count amounting in one case to almost 1,000,000, a distinct polycythemia. How to account for this we do not know, possibly a reversion back to the fetal blood-making function, because of traumatic irritative changes or reduction of a hemolytic sensitizing substance which the spleen may supply to the blood-destroying qualities ascribed to the liver.

In conclusion we have found:

1. That partial splenectomy is a comparatively

simple operation in the dog, that the matter of hemorrhage is readily controllable and healing occurs by primary intention.

2. That a partial splenectomy in these five cases was accompanied by a distinct polycythemia.

It remains to be demonstrated:

1. Whether this condition will be constant and whether it will be so manifested in the human being.

2. And also what value an increase in red cells thus produced by partial splenectomy will have upon the course in the treatment of hemolytic jaundices, Banti's disease and pernicious anemia.

THE TREATMENT OF SYPHILIS.

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So much has been written on this subject that one hardly dares add to the voluminous literature, unless he has something new to offer. The standard treatment for syphilis used with the American Expeditionary Forces in France, as outlined by Lt. Colonel Hugh H. Young, M. C., is probably one of the most thoro and systematic treatments that has yet been offered.

It cannot be too strongly impressed about the variation of the Wassermann reaction in different individuals on various days and the interpretations that are made by various laboratory workers. The widely different effect of salvarsan on the serum reaction often leads us astray in the treatment of common cases. There is a so-called latent stage, which we all meet in private practice, that is most confusing as regards the serum reaction both to the physician and the intelligent patient. This is one of the most important stages of the disease and is one in which the negative blood Wassermann reaction is one of the least value.

If it is proper to divide syphilis into stages so far as treatment is concerned, let us define this stage as the one in which the patient has had syphilis, been treated and shows no clinical symptoms of the disease. The percentage of positive reactions in this stage is very difficult to obtain because so many factors come into play, such as the strain of spirochete, the time that has elapsed since infection, the amount of treatment, the date of the last treatment and whether or not there have been recurrences. At this time several negative blood Wassermanns plus a negative provocative injection of salvarsan, certainly calls for a lumbar puncture and complete examination of the cerebrospinal fluid. Let us not forget that a negative blood Wassermann does not mean that the patient does not have syphilis.

The standard treatment for syphilis, as used in the American Expeditionary Forces with slight variations, is as follows:

First Course.

Day	Novarsenobenzol	Cyanide of Mer.	Grey Oil
1	0.30		--
2		0.01	
3		0.01	
4		0.01	
5	0.45		
6		0.01	
7		0.01	
8		0.01	
9	0.60		
10		0.01	
11		0.01	
12		0.01	
13		0.01	
14	0.75		
15		0.01	
20	0.90		0.10
27	0.90		0.10
34	0.90		0.10
41	0.90		0.10
Totals	5.70	0.11	0.40

30 days rest.

Week 10: (1) Wassermann on blood.
(2) Lumbar puncture with complete serologic examination of spinal fluid.

Regardless of serologic results, proceed with

Second Course (Tenth Week).

Day	Novarsenobenzol	Grey Oil
1	0.45	0.10
8	0.60	0.10
15	0.75	0.10
22	0.90	0.10
29	0.90	0.10
Totals:	3.60	0.50

Months 3½: Two and one half months' rest. At end of rest Wassermann on blood. Then, regardless of result, give

Third Course (Seventh Month).

Month 7: Same as Course 2 (Novarsenobenzol and Grey Oil once a week).

Months 7-10: Three months' rest. Wassermann (end of 10th month).
Then, regardless of result, give

Fourth Course (Eleventh Month).

Month 11: Same as Course 2 (Novarsenobenzol and Grey oil once a week).

Month 12: Rest for last month of first year and for first three months of

Second Year of Treatment.

Months 13-15: Rest for three months, and at end of this period.
(1) Wassermann on blood.
(2) Lumbar puncture with complete serologic examination of spinal fluid.
If both blood and spinal fluid are negative, give no treatment. If either or both are positive, begin treatment again with Course 2, (Novarsenobenzol and grey oil).

Months 15-19: Four months later. Wassermann on blood. If negative, no treatment. If positive, treatment with Course 2.

Months 19-24: End of second year—five months later.
- (1) Wassermann on blood.
- (2) Lumbar puncture with complete serologic examination. If both are negative, no further treatment. If either or both are positive, begin again with Course 2.

Of course, the treatment as above outlined is subject to many variations, such as the tolerance and reaction of the patient to arsenic and mercury, and the difficulty of supervision of the average run of patients. It is suggested that in the first course the patient be given a few intravenous injections of mercury before starting the small dose of novarsenobenzol. Patients who are unable to come for treatment except at weekly intervals may commence with Course 2, the dosage varying accoding to the age of the patient, the weight and physical condition with special reference to the nervous system.

The routine mercurial preparations employed were cyanide of mercury in ampules for intravenous uses, dose 0.01 gram, and grey oil containing 40 per cent. mercury for intramuscular use, dose 0.07 to 0.10 gram. Morton says, "The routine treatment of administering mercury by mouth is a method that should be relegated to the dust heap of antiquity." Most patients suffer from little reaction after injection of novarsenobenzol (Billon), a French preparation which is difficult to obtain in this country at this time.

SYPHILIS OF THE NERVOUS SYSTEM

In the treatment of cerebrospinal syphilis and more especially tabes, the writer has had most success with the method of Mehrtens, and used by Oliver at the Letterman General Hospital, which is essentially as follows:

40 or 50 cc. of blood is withdrawn. 15 cc. of the clear serum together with 15 cc. or normal salt solution are heated for an hour at 56°.

30 cc. of spinal fluid is withdrawn and the mixture of 15 cc. of the patient's clear serum, plus the normal salt solution, is injected into the spinal canal.

Six hours later an intravenous injection of one of the arsenical preparations is made.

At least four weekly treatments as above described are made.

Medical Building.

THEIR DIAGNOSTIC SIGNIFICANCE CONSIDERED FROM A NEUROLOGIC STANDPOINT.*

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Sensory disturbances are among the most common of clinical manifestations, seen frequently by all of us whether practicing general medicine or one of the numerous specialties. The sensory disorder may be the predominating or even the sole sign, or it may play only an unimportant role in the symptom complex.

Given a case presenting sensory phenomena, the first question to be considered is whether these changes are functional or organic in origin.

FUNCTIONAL SENSORY DISTURBANCES.

Hysteric analgesia, anesthesia or hypesthesia rarely conform to any definite nerve distribution, but are segmental. For example, in hysteric paralysis of the extremity the area of anesthesia extends up the limb to a given point, then ends abruptly, its upper level extending about the limb in a circular manner. It is this characteristic which has given rise to the term "stocking-like" or "glove-like" anesthesia. When affecting the trunk, if paraplegic in type, the sensory disorder ends in the same circular manner instead of following the more oblique course of the spinal nerves and, if hemiplegic, terminates abruptly at the midline of the body, this being in sharp contrast to organic hemianesthesia, which is most marked at the distal portion of the extremities, gradually becoming fainter as the trunk is approached, and fading into normal before the midline of the body is reached.

Hysteric pain is invariably sharply circumscribed; thus we have the clavus hystericus, or "nail-like", head pain of the hysteric in contradistinction to the more diffused general headache. In the one case the patient points to the spot with his finger, in the other the palm of the hand is apt to be placed upon the head. The hypersensitive areas, so common in hysterical patients, are also circumscribed. We find them under the breasts, over the inguinal region or along the spine. These are the so-called "devil spots" of Charcot. They are superficial in character. Many so-called "painful" but really healthy ovaries were in times past removed by the gynecologist before the superficial character of these hysteric spots over the ovaries was emphasized. They can be readily demonstrated by a bimanual examination, the painful area being included between the fingers of the vaginal and abdominal palpating hands.

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*Read before Spokane County Medical Society. Spokane, Wash., Nov. 13, 1919.

ORGANIC SENSORY DISTURBANCES.

Disturbances of sensibility cover a wide range and may be divided into the (a) subjective and objective, (b) general and special. Head and Rivers have divided sensibility into (1) protopathic, having to do with pain sense of the skin and viscera, and the extremes of heat and cold; (2) epicritic, referring to the sense of touch and the finer grades of temperature change; (3) deep sensibility, which has to do with the sense of muscular movement, position, resistance and weight, vibratory, etc.

Sensibility, as we know, may be either (a) increased (hyperesthesia), (b) diminished (hypesthesia), (c) abolished (anesthesia), (d) perverted (paresthesia).

Peripheral Nerves. Sensory loss from injury to a given sensory or mixed nerve corresponds to the distribution of the nerve or nerves affected. The changes do not extend beyond the boundaries of the nerve but, owing to more or less extensive overlapping and anastomoses, all three forms of sensibility are not affected to the same degree. In the case of a mixed nerve the associated motor and trophic disturbances should render the diagnosis easy.

When a nerve is completely divided, pain in its peripheral distribution is entirely absent. When the injury causes only a partial division of the nerve, severe spontaneous pain, associated with tenderness, hyperesthesia and vasomotor disturbances may develop. Weir Mitchell has termed this condition causalgia. Causalgia develops usually within a few weeks after the nerve trauma, and affects chiefly the median, ulnar and internal popliteal nerves. Once seen, this condition is rarely forgotten. The pain is excruciating, tearing and burning in character, often accompanied by profuse perspiration in the peripheral distribution of the affected nerve.

Neuralgia is characterized by unilateral and paroxysmal pain. It is not within the purpose or scope of this informal talk to discuss the symptoms of lesions of the individual peripheral nerves, yet we can hardly pass on without a word or two with reference to a couple of interesting conditions; cervical rib and meralgia paresthetica.

The symptoms produced by a cervical rib are usually both motor and sensory, but the latter are the first to appear and may be the sole manifestations. First, pain in the shoulder and arm and along the ulnar border of the forearm and hand; later, numbness and tingling along the ulnar border of the forearm and hand, ring and little fingers and, finally, actual sensory loss in the same areas. In one case seen by the writer there was a band of anesthesia along the inner side of the arm. The symptoms are usually unilateral but may be bilateral and result from pressure or stretching of the last cervical and first thoracic roots, the lower cord or inner trunk of the brachial plexus. Once the condition is suspected the diagnosis can be made by the x-ray.

Meralgia paresthetica is a condition of obscure etiology, affecting chiefly the external cutaneous nerve of the thigh, and causing paresthesia in the area involved with a patch of hypesthesia or anesthesia about the size of the hand, on the anterolateral surface of the thigh. This is often associated with pain of a more or less neuralgic character, referred to the same area. While the pathology is debated, the symptoms are probably due to a sensory neuritis. Trauma and the wearing of a heavy belt have been ascribed as causes, with the long course of the nerve thru the fascia as a predisposing factor. Of two cases seen by the writer, one was probably due to pressure from a first aid packet, the other occurred in a woman with succeeding pregnancies, and was reported several years ago before the Philadelphia Neurological Society.

The sensory disturbances of multiple neuritis run the whole gamut, from pain to anesthesia. Paresthesias, such as tingling and numbness, appear early, to be followed by severe pain and tenderness along the nerve trunks; later anesthesia may appear. The symetrical, bilateral character of the affection, the associated motor and trophic symptoms, the wrist drop and the steppage gait make a clinical picture easy of recognition. Moreover, an infection or toxemia can invariably be traced as the exciting cause. There was a time when alcohol was the most frequent cause, but "all signs fail in dry weather."

Before leaving the subject of multiple neuritis, it may be well to mention a symptom, not frequent, but which occasionally appears as the result of sensory loss, namely, ataxia or incoordination. Cases of multiple neuritis have been mistaken for tabes because of the ataxia, especially as it is associated with loss of reflexes and pain, but the resemblance is only superficial, as tabes presents the Argyle-Robertson pupils, bladder dusturbance and lightening pains and does not show the motor weakness, muscle wasting and more rapid onset of a multiple neuritis.

A condition sometimes seen which may be mistaken for a multiple neuritis, and indeed does present a neuritis, not of the nerve trunks but of the terminal nerve filaments in the fatty tissue, is adiposis dolorosa, primarily a ductless gland disorder, but presenting, as one of the chief symptoms, areas or masses of painful adipose tissue.

Spinal Cord. It is in diseases of the spinal cord that one finds the most unusual sensory symptoms and the greatest diagnostic difficulties. Even in so well known and so common a condition as tabes, the sensory manifestations may be bizarre and confusing. For instance, the only subjective symptom in the case of a man who came to the Neurological Dispensary of the Jefferson Hospital, was a severe, burning sensation in one great toe. Another case of tabes, seen in private practice, complained bitterly of an intense coldness in his feet, and I can assure you that this type of paresthesia was most distressing, causing the patient more suffering than his lightening pains. More common sensory manifestations of tabes are the sharp, shooting pains, the areas of anesthesia, girdle sensation and loss of the deep sensibility, as muscle and joint sense giving rise to the ataxia. These varied sensory disturbances are readily explained by a glance at the pathology of the disease. Fibres conveying muscle and joint sense, together with a few tactile fibres, pass up the cord thru the posterior columns (Goll and Burdock), which are the seat of the sclerosis, while invasion of the sensory roots is responsible for the limited areas of anesthesia, the girdle sensation, pains and visceral crises.

Dissociation of sensation is almost pathognomonic of syringomyelia. This condition is characterized by loss of pain and temperature sense, with preservation of tactile sense. The disease affects invariably the cervical cord, the hands, wrists and forearms showing the peculiar sensory dissociation, generally accompanied by a progressive muscular wasting. The pathology is that of a gliomatosis with cavity formation in the cord, commencing in the gray matter near the central canal, where the fibres for pain and temperature decussate after entering thru the posterior roots and before passing thru Gower's tract. Chronic anterior poliomyelitis presents the same progressive muscular wasting but it is unaccompanied by any sensory changes.

Morvan's disease is a type of syringomelia, presenting marked disturbances in the extremities.

It may be well, at this place, to state that some cases of acute anterior poliomyelitis, which is really a meningomyelitis, have pain in the extremities as an early symptom, because of the infiltration and edema of the membranes of the cord, thru which must pass the sensory roots.

Lateral sclerosis and amyotrophic lateral sclerosis present no sensory symptoms.

The sensory disturbances of a transverse myelitis are so well known as to need no discussion.

Tumors of the spinal cord usually have pain as an early symptom. Due to pressure of the tumor within the spinal canal at the site of the tumor, the pain is girdle-like or regional, and later may change to localized anesthesia. Surgeons operating for carcinoma of the breast should be suspicious of girdle-like pains developing some months after the operation, as metastasis to the spine is only too frequent. This was strongly impressed on my mind by a surgeon at the Jefferson Hospital who refused to operate on a patient for cancer of the breast, because girdle-like pains had developed, altho there was at the time no positive organic sign of spinal tumor.

Disturbance of general sensibility, due to brain lesion, has already been mentioned and, as we know, is due to involvment of the parietel lobe, adjacent to the Rolandic fissure or the corona radiata, posterior third of the posterior limb of the internal capsule, etc. and affects the side of the body opposite to the lesion.

Disturbance of special sensation of cerebral origin is chiefly important thru its localizing value. The stereognostic sense is a composite faculty, the appreciation of the size, weight, shape, texture, etc. of objects, determined by blindfolding the patient and asking him to name various objects placed in his hand. Astereognosis, or the loss of this sense, is the result, also, of a parietal lobe lesion, involving the region posterior to the area for general sensibility.

As the ophthalmologist well knows, unilateral blindness results from a lesion anterior to the optic chiasm. Hemianopsia, or blindness of one half of the visual field, indicates a lesion of the chiasm or at a point on the optic pathway between the chiasm and the cuneus in the occipital lobe, or of the cuneus itself.

In homonomous hemianopsia the blind halves of the retinae correspond to the side of the lesion (right sided lesion, right half of each retina affected, and vice versa) and the blind visual fields are on the side opposite to the blind halves of the retinae.

The center for word blindness is located in the angular gyrus and the centre for word deafness in the first temporal convolution, both of course being on the left side in a right handed individual. I purposely refrain from entering into a discussion of the views of Marie on the general question of aphasia and use the old classic idea of the sensory aphasic centres.

In closing I would emphasize the importance of making the distinction between functional sensory disturbances and sensory disorders of organic origin, also that organic sensory symptoms should be studied in their relation to other symptoms and with reference to the etiology.

A PLEA FOR A TREATMENT OF ECLAMPSIA.*

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In discussing eclampsia, an attempt will not be made to cover all phases of the subject, but the discussion will be largely confined to the presentation of a form of treatment which, tho not new, has failed to gain the favor of the medical profession at large, probably because of its rather radical departure from the accepted practice and partly to the scepticism of the doctor relative to the new or untried.

It would be presumptious of me to suppose that I can bring to your attention anything new. If I shall succeed in renewing your interest in an old subject, I shall feel repaid. We all see eclampsia, and tho old it is ever new in its absorbing interest. Before it we are nearly as helpless in selecting a treatment as in modifying its results. Over 20 per cent. of women afflicted with eclampsia die, and this has been rarely affected by changes of treatment in the last hundred years.

The rationality of a mode of treatment should be based upon a complete knowledge of etiology. With eclampsia, however, there is no rational treatment in this sense. Treatment must be empiric. Whether eclampsia is a toxemia of fetal or gastrointestinal origin, whether it is an acute infection, general or focal; whether it is a food intoxication or an anaphylaxis, whether it is nephritic at times or always, we do not know. Whether, as Beck believes, it is not an entity but divisible into several diseases with different causes operating in each, we do not know. In spite of its frequency and in spite of the enormous amount of work done on it over many years, we know simply that eclampsia occurs in pregnancy, usually the latter months, during labor and postpartum. More than this we do not know.

That the changes incident to pregnancy are in some way responsible for the development of eclampsia early led to the interruption of pregnancy for convulsions in the latter months, and to early termination of labor for convulsions intrapartum. These measures, combined with the treatment of the patient as a toxemic by elimination and with sedatives, constitutes the accepted treatment for eclampsia today.

The termination of pregnancy varies all the way from simple induction of labor to Cesarian section or forcible obstetric delivery, accouchement force, with its train of puerperal infection and life-long invalidism. Today the simple interruption of pregnancy by conservative measures largely prevails. The radical treatment of Duhrssen, that the pregnancy should be terminated at one sitting under deep anesthesia if necessary, unfortunately has its followers.

In our treatment of eclampsia we are largely concerned with the means of terminating pregnancy or hastening labor, disregarding usually the frequency of the development of convulsions postpartum. This late development of fits would indicate that delivery is not all; while with De Lee eclamptic convulsions developing first postpartum have given the highest mortality.

In 1901, Stroganoff, of Russia, reported 113 cases of eclampsia with convulsions treated by means of morphine, chloral and elimination. Of this number six died, partly due to accidental complications and partly to the serious condition in which they were before treatment was begun. These figures in a similar series of cases have never been equalled. In 1903, this treatment with some modification was introduced into the Rotunda Hospital of Dublin by Dr. Tweedy. During the next eight years of his mastership there, 74 cases of eclampsia were treated by this method, with 6 deaths, a mortality of 8.11 per cent. The mortality of eclampsia in the same institution up to this time was 35.3 per cent. In America, Dr. McPherson, of the New York Lying In Hospital, has treated over 60 cases, with a mortality of less than 9 per cent., while at the Long Island College Hospital, in Brooklyn, where the treatment is used, the mortality is the same in a smaller series.

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*Read before Pierce County Medical Society, Tacoma, Washington.

It is of this, the morphine treatment of eclampsia, with which I have had some experience, I wish to speak. In the treatment of developed eclampsia the pregnant condition of the woman, if the attack be antepartum, is disregarded. Forceful delivery, Cesarean section or even the simple induction of labor have no place. The patient is treated medically as a toxemic. If she falls into labor, which is by no means desired tho usual, she should be permitted to deliver spontaneously. At most an episiotomy may be done or low forceps applied with the head on the perineum without progress, or upon the evidence of fetal distress.

It has occasionally occurred that the woman is treated medically, recovers undelivered from her eclampsia, goes several weeks to term, and gives birth normally to a live baby without recurrence of the convulsions. The frequency of convulsions developing or persisting postpartum is an indication that delivery alone is of questionable importance.

With your permission, I shall review somewhat in detail the treatment of eclampsia as outlined by Tweedy, because he insists that the good results obtained depend upon a strict adherence to these details, and that no one of them may be safely disregarded. Upon the appearance of convulsions, an initial dose of morphine is given hypodermically, gr. 1-2, together with 1/100 grain of atropine sulphate. One-quarter of a grain of morphine without the atropine is given in the same way every two hours up to 2 grains in twenty-four hours or until the respirations are down to six per minute or the convulsions cease. Polak gives ¼ grain of morphine every hour after the initial half grain, but does not give the atropine. He stops the morphine when respirations reach eight per minute, a somewhat safer minimum it would seem.

If the patient is conscious and able to swallow, a drastic cathartic is given, repeated in fifteen minutes if vomited, and followed by large amounts of plain water. The nature of the cathartic is immaterial. It should be effectual. If she is unconscious, a stomach tube is passed, and the stomach irrigated until the water returns clear. If she is intractable, it may be necessary to wait for this until she is under the influence of the morphine. The stomach is emptied as nearly as possible because of the danger of regurgitation. Thru the tube still in the stomach is poured a drastic cathartic, 2 ounces of castor oil with three drops of croton oil, or 3 ounces of magnesium sulphate crystals, dissolved in the smallest amount of water. The bladder is emptied by catheter. Little urine is usually found, and catheterization is repeated only for distension.

The patient is now turned on her side and the bowel is irrigated as was the stomach, until the return water becomes stained with feces. This process is slow, and often several gallons of water may be required. At the end of the rectal irrigation, if the patient be unconscious and unable to take water by mouth, a solution of soda, one dram to the pint, should be introduced thru the tube to be retained. At the end of eight hours, if the bowels have not moved spontaneously as the result of the purgative, the colon should be washed out again. If, at the end of a further six hours, the bowels have not acted, a second physic should be given. The bowels should move four to six times in the first twenty-four hours.

Following the initial dose of morphine, if the patient be unable to take liquids by mouth, a hypodermoclysis of sodium bicarbonate solution or normal salt is given, regardless of the presence of edema. This may be repeated in eight hours, if no improvement in the condition occurs. Tweedy places a hot linseed-meal poultice to the loins, and renews it every two or three hours. He believes it assists in restoring kidney function.

Of particular importance in preventing aspiration of saliva or vomitus and asphyxiation, due to swallowing the tongue, is the posture of the patient. Tweedy insists that the patient be left constantly on the side, that salivary accumulation escape to the surface, and believes that two of the cases, for which he was responsible but which he did not see thruout, died of asphyxiation. When one considers the frequency of posteclamptic pneumonia, it is possible the neglect of this simple preventive measure is at fault.

The general care of the patient otherwise, as to the prevention of injury during a convulsion, the stimulation for cardiac failure, oxygen and artificial respiration for cyanosis and asphyxia present nothing apart from the usual practice.

Following the cessation of the convulsions and return to consciousness, water may be given freely, but not food for twenty-four hours, not even milk. Tweedy believes that the early administration of food following apparent recovery from eclampsia is the cause of recurrence of convulsions, and in one case was the cause of death. It has seemed to me that the early administration of milk, the article usually selected, was a factor in producing delirium in several cases after an interval of consciousness. Withholding food for forty-eight hours and then starting with clear coffee or tea, with or without sugar, dry or buttered toast, and vegetable gruels, all without milk, prevented this toxic insanity; at least it did not occur.

In the treatment of the rare manifestations of eclampsia without convulsions, with its low blood pressure, profound coma and relatively high mortality, it would seem that morphine is unnecessary and that elimination as outlined and stimulation would be indicated.

No attempt is made to control the convulsions by the administration of inhalation anesthetics; the patient is not bled, not sweated or given veratrum viride. A spinal puncture is not done. Vapor baths and other means to promote diaphoresis are apparently improper procedures. Eclamptics are suffering from a scarcity of fluid in the circulation, and this in spite of their tissues being possibly solid with edema. What is greatly wanted is a less saturated condition of the blood and it is hard to suppose that profuse sweating can have any other action than to increase this abnormality. The amount of toxins eliminated by the skin is a question not answered. Hot packs and baths are not without danger of producing collapse.

Chloroform is closely associated in its effects on the liver and other organs with the eclamptic poisons, and for that reason should not be used. Ether is slow in its action, while nitrous oxide is likely to elevate to a dangerous point an already high blood pressure. The short warning given of an impending convulsion is hardly sufficient to allow for the administration of enough of any anesthetic to greatly modify the fit.

Veratrum viride remains a favorite drug in the hands of many. Its principal action is upon blood pressure, which might justify its use were elevated blood pressure the only symptom to be relieved. High blood pressure eclampsia, as in nephritis, is a compensatory process. Rarely does blood pressure give concern, except as it indicates on one hand a profound toxemia or on the other a beginning cardiac failure. When shall we reduce a high blood pressure and to what point?

Venesection is a measure which theoretically has much to recommend it. By it blood pressure is reduced, usually only temporarily. By means of it toxemia is relieved, absorption of edema favored with an ultimate increase in circulatory fluids. Beck, of Brooklyn, bleeds for a systolic pressure of 175 millimeters of mercury or more; De Lee bleeds only postpartum. Moderate postpartum hemorrhage has long been held an adjuvant measure of value, but it is difficult to control. Because of that uncertainty and difficulty of control, it would seem best to perform venesection after delivery, when the blood lost at delivery is a known quantity.

Dr. Cornell, of Chicago, is a firm advocate of spinal puncture in the treatment of the restlessness and delirum of eclampsia. I have rarely seen the spinal fluid under tension, and puncture has not seemed to modify the symptoms appreciably. It is hard to understand why this measure should relieve cerebral symptoms, as moderate edema only of the brain is found postmortem.

The fact remains that modifications of the original treatment of Strogenoff have not lowered the mortality of eclampsia. His figures remain the best available for a similar series of cases. It would seem that departure, however slight, from the treatment outlined by him has given consistently a higher death rate.

Apart from the mortality of eclampsia, the morbidity figures of treatment are rarely quoted. The resistance of the eclamptic to infection is definitely lowered. Asepsis is difficult to control. Simple obstetric operations if practiced on the non-eclamptic become fraught with danger if performed on the eclamptic. What does it avail if our patient recover from eclampsia following violent operative delivery, if she later die of puerperal infection, or become a life-long invalid, due to the irreparable damage resulting from that delivery? The reaction to the radical teaching of Duhrsen was was really a reaction arising from the morbidity of his treatment. The cure was worse than the disease.

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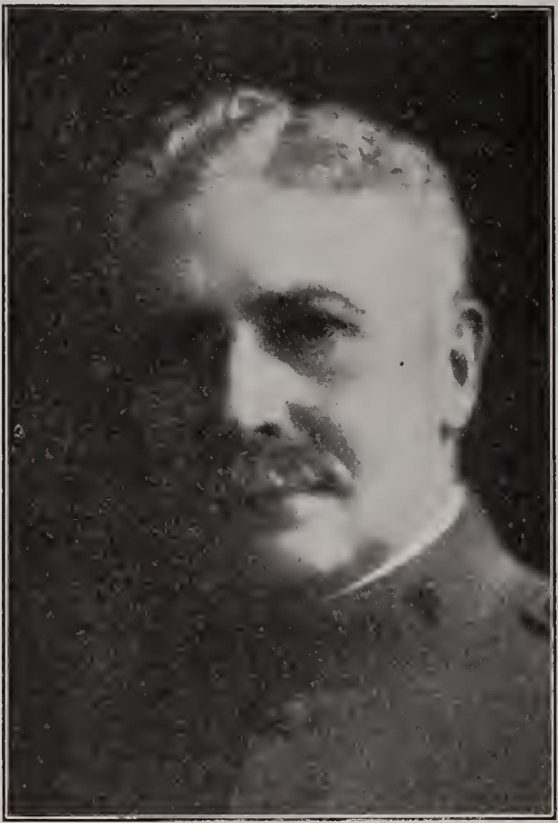
EDITORIAL



KENNETH A. J. MACKENZIE,
M. D., C. M., F. A. C. S.,
L. R. C. P., and L. R. C. S., (Edinburgh).

Dr. Mackenzie died suddenly and to most of his colleagues unexpectedly Monday, March 15, at 7:30 p. m., at his residence in Portland, Ore. Death was ascribed to angina pectoris which was perhaps but the terminal manifestation of cardiac disorder, dating back for nearly twenty years. About 1900 he suffered from infection of his hand, contracted in a surgical operation and followed by an acute endocarditis, necessitating a long vacation from which he returned greatly improved. Tho traces of this disorder remained in the heart sounds, he suffered no inconvenience therefrom and only those most intimately connected with him knew about the trouble. He was a proud man, unaffected by the remotest touch of neurasthenia or psychasthenia and was never willing to admit that he was overworked, fatigued or sick in any way.

In midsummer of 1919 there were some signs of cardiac decompensation, tho this he never disclosed except to his medical advisers. In September, while attending the meeting of the Washington State Medical Association at Spokane, he developed an acute gastroduodenitis and cholecystitis, from which he was confined to bed for six weeks. Thereafter he visited California. Upon his return in December he resumed his work in part but those who knew him best were conscious that he was not well, altho he insisted that he was on the high road to complete recovery. About two weeks prior to his death influenza assailed him and he again returned to the sick chamber. Apparent convalescence was soon established and he had arranged for a meeting of the faculty of the Medical School at his home on Tuesday, March 16, which was never held, for he was attacked the night preceding by angina pectoris which shortly thereafter proved fatal.

Among the contributing causes of his death the war played a part. He was greatly affected by it and on many occasions discussed it publicly in a manner characterized by vigor of expression, courage and high patriotism. There was but one side of the fence for him. He wanted the war fought and fought to a finish and no one who ever heard him discuss it was in doubt as to where he stood. And he served and served well. Being too old for enlistment he became medical aide to the Governor, local head of the Red Cross, and general adviser to military headquarters at Washington. He was in charge of reconstruction work and chairman of the state committee on National Defense, and in the latter capacity made an inventory of the hospitals of the state and an investigation of physicians and surgeons who were suitable for active duty. His associates say that the number of people who visited him in connection with these duties was almost incredible. He saw each of them, often to the neglect of his personal business affairs and each went away encouraged to better effort. He was omnipresent, enthusiastic, encouraging and active in the prosecution of the cause of the Allies against the Hun. There can be no doubt that these added labors, coupled with his duties as Dean of the

Medical School and superimposed upon already heavy obligations, contributed to his death and it is not improbable that he gave his life for his country quite as much as they gave theirs who died upon the battle fields of Flanders.

The death of Dr. Mackenzie removes from the Pacific Northwest its most commanding medical figure. In education and reading, in social qualities and polish, in the ability to meet men and women on all planes of life, in breadth of clinical experience, in unusual powers of observation, in receptiveness and analytic gifts he was balanced as few men are balanced, and was not only preeminent in the Pacific Northwest but was in the front rank of the leaders among the great physicians and surgeons of the land. His devotion to his profession was almost unexampled and, tho he had other topics of conversation, was a good reconteur, enjoyed shooting, took part in many social activities, preserved an interest in the Church and in general was many sided, the one consuming interest of his life was medicine and surgery. He had many duties which he performed without shirking, yet found time to attend and was a conspicuous figure at almost every medical meeting in his own city and at most of the more important medical meetings of the Pacific Northwest. In his home town the reader of almost any paper in medicine could be reasonably assured of at least one attentive listener. All subjects and every specialty seemed to interest him and he appeared to enjoy listening to anyone who had views and opinions to present. He attended closely to whatever was said, not infrequently taking part in the discussion, in which he had the faculty of saying something pleasant about the paper, something that would stimulate the reader to better efforts and, tho he did not hesitate to point out what he deemed error, his criticisms were invariably constructive and helpful.

Perhaps the shining light of his life was the broadness of his views and toleration of other men's work. Tho a good surgeon his excellent results were due quite as much to accurate diagnosis as to surgical technic. As a teacher he was painstaking and careful. Young men fresh from his classes remembered the things he told them and when they wanted advice sought him with the assurance of a kindly reception.

In the latter years of his life Dr. Mackenzie made a fetish of the development of a great medical center in Portland. When he became Dean of the Medical School, one of his earliest efforts was to secure an appropriation from the legislature for the maintenance of the school and the state, as a result largely of his activities, appropriates sixty thousand dollars biennially for that purpose. He secured a gift from the O. W. R. & N. Co. of twenty five acres of ground on Marquam Hill to be used as a campus for the Medical Department of the University of Oregon, and an appropriation from the legislature of something over one hundred thousand dollars for the first building which has already been erected thereon and which, under the name of *Mackenzie Hall,* will prove an enduring monument to his memory.

In eighteen ninety-five he became chief surgeon of the O. W. R. & N. Co., in which position he was given abundant opportunity to develop his ability as an organizer. His work here was more than satisfactory and not the least of the tributes that may be paid to his memory is the high esteem in which he is held not only by the heads but more especially by the employees of the company, and no small part of the good feeling which they reciprocate so notably is directly traceable to his efforts, conbined with those of his contemporary, Mr. W. W. Cotton, of the legal department whose death occurred, it seems, but yesterday.

When the Tristate Medical Association was formed a dozen years ago and NORTHWEST MEDICINE was adopted as the official medical journal of Oregon, Washington and Idaho, Dr. Mackenzie was elected one of the trustees for Oregon and served up to his death with characteristic faithfulness here as elsewhere, rarely failing to be in attendance upon meetings of the board and to give as much time and effort as were necessary to the work.

Dr. Mackenzie was born in Manitoba, Jan. 13, 1859. He was educated in Scotland, in Montreal and in Toronto and received his medical education in McGill University, from which he graduated in 1881. He followed this by a trip abroad and became a licentiate of the Royal College of Physicians and Surgeons of Edinburgh. In 1882 he came to Portland, where his life became part of the community and the community part of his life. He was for many years professor of medicine in the Medical Department of the University of Oregon and, altho his tendencies were surgical, he served with distinction in that capacity. Later he became professor of surgery and with the retirement of Dr. Josephi in 1912 he was elected Dean of the Faculty.

CONTRACT PRACTICE.

Contract practice has long been a perplexing question. Spokane County Medical Society has evidently recently attempted to solve the problem and, according to newspaper reports, in a most drastic manner. It seems that at first a by-law was passed, prohibiting its members from engaging in all forms of contract practice except those provided for by city, county, state or national governments and transcontinental steam railroads. Later, and apparently under pressure of criticising newspaper articles, a broad sweep was made, abolishing all forms of contract practice.

There can be no doubt in the minds of all thinking men that any form of contract practice, which pays a medical man a stipulated sum for all the work that may develop in a given group of people, must carry with it many iniquities. To carry such a proposition to its logical, if ridiculous, conclusion would be comparable to a contract made by a grocer with a given lodge to furnish all its members with all the groceries they might need in a given time for a stipulated sum. Should those needs grow large enough, it would be but human for the grocer to refuse to carry out his contract. Similar circumstances have actually occurred in contract medical practice. If the contract physician is engaged in private practice also, collecting reasonable fees for his services from one individual and a contract fee, which is a small fraction of a single dollar, from his neighbor, a gross injustice is being done the private patient, if he is rendering an equal service to both, or to the contract patient, if he is not giving him the same service he is giving the private patient. There can be no argument; one or the other is being done an injustice.

There are various kinds of contract practice, some good contract practice, some might be called excusable contract practice, some might be questionable and some is wholly iniquitous. The best practice of course is that indulged in by every physician engaged in private practice; he renders his best service for the fairest fee commensurate with the services rendered and the ability of the patient to pay. Contract practice, on the other hand, is rendered in consideration of a compensation which is reduced by the physicians for the purpose of getting the work, or a reduced compensation is offered some physician by a group of people in order that the medical profession as a whole be deprived of what under ordinary circumstances is considered by its members as adequate remuneration. In other words, either the physician is offering his services at a reduced fee to take the work from other physicians, or the beneficiaries of the contract are offering to pay a reduced fee in consideration of concentrating the work with a given physician; in either event somebody is trying to "do" the medical profession as a whole. These forms of medical practice carry with them sufficient obvious iniquities to condemn them without further argument.

Large industrial concerns, railroads and other corporations engaged in hazardous activities often find it necessary to employ a physician to protect their interests when employees suffer injuries. In the state of Washington these interest have been more or less safe-guarded by the Workmens' Compensation Act and, therefore, this excuse no longer exists. Furthermore, it has always been a subterfuge where the actual cost of the medical service was saddled upon the employees by monthly deduction from their wages. It is tantamount to protecting the interests of the employer at the expense of the employee and throwing to him a sop by providing care, should he happen to suffer illness. The real purpose is to avoid payment for medical and hospital service in case of injury acquired in hazardous activities. This is true not only of industrial concerns but also of some of the railroads. Other railroads frankly employ a physician to render such service in case of accident to employees or passengers and pay him a salary from the funds of the corporation, the service being offered gratis to the employee or the passenger in case of necessity. There can be no question of the right of a corporation to adopt such a policy. Lodge contract practice has long been conceded to be wholly inexcusable and is forbidden by most of the component societies of the American Medical Association. This is an example of discriminatory privileges improperly exercised by local organizations.

Perhaps one of the greatest arguments that can be brought forth against contract practice is that it often encourages intellectual laziness. It may promote indolence, and may provide a berth for the unworthy and dishonest practitioner who, thru friends, business circumstances or other means, fortifies himself with a large number of contracts and then often settles back into a state of physical, as well as intellectual laziness. Should such a physician also be engaged in private practice, the private patients might suffer from the lazy habits acquired among contract patients. In this day of specialism contract patients are often deprived of special types of work, because their physicians under the contract cannot buy these services cheap enough to make it a paying business to furnish this sort of service.

It can be mathematically demonstrated that, if all medical men were to do work on a contract basis, no physician could make an adequate living; therefore, the so-called advantages accruing to the contract physician in the ultimate analysis must disappear. If it is not a paying business on a large scale, it is not a paying business on a small scale. It would seem to us that the entire question needs revision by state organizations, a study being made by men of vision who should classify the types of work that may be placed under contract in a satisfactory way and make the necessary provisions so that no injustices should be done. These questions should be studied carefully by disinterested men, who should be given the power to decide whether or not a contract may be carried on without detriment to the profession as a whole. For example, it must be very clear that a railroad contract on a hospital association basis, where men whose salaries are notoriously high are given services at a ridiculously small fee, cannot be tolerated. It must likewise be clear that a railroad or other corporation which employes a physician and pays his salary from corporation funds, his duties to care for injured employees or passengers without making a charge for such service, is exercising a perfectly proper legal as well as moral right. Possibly another solution, but one which approaches dangerously near the question of health insurance, is the establishment of a beneficial association among groups of employees, whose wages are so small as to necessitate some such protective fund accumulated by assessments and administered by a well-chosen group of men, who would buy medical, surgical and specialistic services at the market value whenever most desirable. Thus the small waged working man at a small cost would receive the best medical attention obtainable.

SPHERE OF THE DIAGNOSTICIAN SPECIALIST.

Changes are coming to the world in all walks of life. Advancement in all things is the slogan of the day. The teaching of medicine has changed in forty years by gradual stages from a series of lectures to teaching laboratories, demonstration and bedside instruction. The writer does not by any means care to decry this system, but he does wish to express his disapprobation of what it leads to in many individuals, and to say that he graduated about the time teachers awakened to the necessity and feasibility of change, and appreciates that graduates of today are better educated than he was.

The evil consequence of this method of teaching, if there be any, is that a goodly percentage of medical men today believe the only practice of medicine worth while is the office and laboratory type, and seem to forget for a time the other type of medical men who have to see patients when they are sick at home, and who may be too ill to await urinalysis, stomach analysis, the Wassermann, the extensive physical examination, the x-ray examination, etc. Not long ago we heard a distinguished teacher say that the time had now come when it was not right for a medical man to see a patient and prescribe for him without making a complete examination. This may be so for the patient who is on foot, who is in no imminent danger or who is not suffering greatly. But to the man with the gall-stone colic, renal colic or an obstruction, the laboratory does not appeal so much as a little action on the part of the attendant. The diagnostician specialist does not come in contact with the immediately serious things of life but the future serious matters. He has often not learned to recognize on short acquaintance that some serious condition has arisen. He has not had that experience at the bedside; he has not learned people as they are when they suffer; he has not been trained as to the ways of people sick at home; he has not had the experience as a general practitioner that warrants him in posing as a specialist in diagnoses and, when he gets away from his beaten route and his tools, he flounders just as a general practitioner would flounder were he to try to use the tools of the office diagnostician.

We all know that many diseases can only be diagnosed by laboratory methods and laboratory routine, and we all know that it requires more judgment and experience to scale a log than to measure the number of board feet of sawed lumber with a tape measure. Both classes of men have the same end in view, and each is deserving as much regard as the other. The bedside medical man recognizes the value of the laboratory diagnostician, has to use him and derives great benefit from his assistance but, if he be prudent and able, will use him as a means of coming to an end by weighing his findings as correlated with clinical findings, not thinking that the laboratory findings are infallible. A proper mixture would make better medical men of bedside practitioners, better medical men of laboratory diagnosticians and would make of them good consultants. Good consultants, like other good specialists, fail to develop without experience.

MEDICAL SERVICE OF WASHINGTON TUBERCULOSIS ASSOCIATION.

The Washington Tuberculosis Association has inaugurated a new line of work, this organization being the second or third in the country to support such a service. The purpose is to further in every possible way the efforts of the laity and physicians in combatting the tuberculosis problem in the state. The association has engaged the services of Dr. Raymond J. Carey as consulting diagnostician. The doctor is a tuberculosis expert, having devoted his time for a number of years entirely to this class of work. The association has several objects in view. It is proposed to establish permanent tuberculosis clinics in the various counties. The only clinic of this kind now in existence is in Seattle, under the supervision of the Department of Health, which for a number of years has done splendid work in combatting the tuberculosis problem of that city. These county clinics will be conducted by the county tuberculosis associations, in cooperation with physicians and county health officers. Dr. Carey will work in connection with the county clinics, to which physicians are invited to bring interesting or doubtful cases for consultation and advice, all of which will be without expense to the physicians or patients. It is also planned to deliver lectures on the subject of tuberculosis before educational institutions, nurses organizations, parent teachers associations, medical societies and the like. Medical tuberculosis clinics will be held before medical societies on their request for such services. The state association will urge and assist in the establishment of sanatoria for the care of tuberculous patients, as well as the employment of nurses to care for the hundreds of patients who are not now receiving adequate attention. This useful service on the part of the state association deserves the consideration and cooperation of the medical profession in all parts of the state.

TREATING TUBERCULOSIS PATIENTS AT HOME.

In former years, when the treatment of tuberculosis was in a hazy state of uncertainty as to its origin and dissemination, the belief prevailed among physicians and the laity that some magic was attached to certain individual climates. It was believed that, if the tuberculous patient could reach the salubrious and rarified climates of Colorado and California, there was hope for improvement and recovery. It seems that even in these latter years these illusions exist in the minds of many people who should be better informed on the treatment of tuberculosis. In view of the existence of these facts, the Denver Antituberculosis Society has issued the following statement which should receive wide publicity.

WHY TUBERCULOUS PERSONS WITHOUT FUNDS SHOULD NOT LEAVE THEIR HOME STATES

It is reliably estimated that several hundred tuberculous persons without funds come to Denver every year, practically all of whom come because they have the mistaken idea that climate will cure tuberculosis. They arrive almost penniless without having made any inquiries or any provisions for their needs. Since Colorado has no state, and Denver no municipal tuberculosis sanatorium (merely a ward at the County Hospital for thirty-five very sick tuberculous residents), the care of such indigent persons is limited to a few free private sanatoria, which are continuously so overtaxed that admittance is a long and difficult matter. These sanatoria comprise the two Jewish, which accept only a small number of Gentiles; a tent colony of men with a capacity for seventy "down-and-outers"; and a small home for a dozen destitute tuberculous women.

These tuberculous poor who migrate to Denver, finding no place where they can be cared for, look for light work in order to maintain themselves and often their dependent families, but the demand for such work is far in excess of the supply. Driven to any work they can get, with neither friends nor care, anxious, homesick, hopeless, they rapidly grow worse, and usually soon die. They die for lack of proper rest, food, fresh air, and medical attention, those essentials of treatment, which many of them could have had at home, or here with sufficient funds for two years care. Without these essentials climate is of no avail. If it were, Denver would welcome these tragic health-seekers instead of urging them, for their own best chances, to stay at home. Denver also urges that the states thruout the country plan definite programs to retain their indigent tuberculous, giving them effective treatment in state sanatoria or in their own homes.

THE ASSOCIATION OF MILITARY SURGEONS.

The twenty-eight annual meeting of the Association of Military Surgeons of the United States will be held at New Orleans, April 22-24, just previous to the meeting of the American Medical Association. It is the desire of the association that the medical profession of the country become cognizant of the work that is being done by the Association of the Military Surgeons. Whether members of the association or not, all physicians are invited to attend the sessions, three of which will be held daily, when addresses will be made on pertinent topics which do not confine themselves to the field of military surgery.

MEDICAL NOTES

OREGON.

Good Samaritan Drive. The drive for the Good Samaritan Hospital funds of Portland, progresses well. Over $200,000 contributions have been received. One of $125,000 is for the Wilcox Memorial Maternity Wards. Another for $45,000 is for a Memorial Surgery.

Location of Contagious Hospital. The long continued agitation relative to the location of the contagious hospital, at Portland, has been settled by the University of Oregon Medical School designating a site for the hospital adjacent to the medical school now under construction. There is question, however, of this site being accepted on account of the money already expended by the city on the proposed site adjacent to Kelly-Butte rock pile.

Tuberculous Sanitarium. It is stated that a large sum of money has been provided by Boston interests which will be used to build a tuberculous sanitarium on the Richter ranch near Roseburg.

Dr. Esther Lovejoy, of Portland, has returned home after prolonged absence. She had a greatly varied experience in war service in Europe. She has been requested to continue this work for another year. She is President of the Medical Women's International Association and Vice President of the American Association which originated the national organization.

Dr. Austen H. Huycke, of Portland, has located for practice at Oregon City. The doctor served with the Canadian army during almost the entire period of the war, returning to Portland a few months ago with his bride, formerly of Versailles.

Dr. R. H. Fields, of Eugene, who served for ten months with the rank of major in Siberia with the Red Cross, has returned home. For a number of years he was located at Gardiner when he left to enter United States Army service.

Dr. Jesse Edgington, who has been a health officer at Hood River for many years, has resigned his office. The city council appointed Dr. V. R. Abraham, now county health officer, to assume the additional duties of the city office.

Injured in Runaway. Dr. E. V. Hoover, of Roseburg, was severely injured last month, when his horse became frightened at a train of cars, throwing him violently to the ground, striking on his face.

New Health Officer Appointed. City health officer, Dr. Anna Ries-Findley, of Bend,, recently resigned office. The city council appointed Dr. C. A. Fowler as her successor.

Dr. J. A. Darby, who has practiced medicine in Pomeroy, Wash., has moved to Astoria, where he is establishing himself for practice.

Dr. J. L. Bloch, of Portland, has located for practice at Ritzville, Wash.

WASHINGTON

College Converted Into Hospital. It is stated that Columbia College, at Everett, will be converted into a modern hospital with 150 beds. The school has been closed for some months and will not be reopened. Additional hospital facilities are much needed in this city. It is estimated that $50,000 will be needed to make the changes. The name of the institution will be Columbia Hospital and Sanatorium, managed by the Columbia Hospital and Sanatorium Association.

Reconstruction Hospital Proposed. Army officials are investigating the buildings at Fort Walla Walla as to the advisability of establishing them as a reconstruction hospital for the treatment of mental disorders among soldiers. The plan is to establish a three hundred bed hospital, where patients will be given occupational therapy. It will cost between $300,000 and $500,000 to put the buildings in proper condition. The two large brick buildings would form the hospital proper, while the frame buildings would be used for members of the staff. Patients to be treated would come from all parts of the northwest.

Sanatorium Gets the Legacy. Last month in the Superior Court of King County it was decided that Firlands Sanatorium should receive a legacy of $5,000 left by William Chislett "to the tuberculosis sanatorium". Since the institution was not named, it was necessary for the courts to decide the ownership of the money.

Rehabilitation of Injured Workmen. It was recently announced that the Public Health and Sanitation Committee, of the Spokane Chamber of Commerce, will begin a campaign looking to the rehabilitation of injured industrial employees, under the direction of the state medical aid board.

New Hospital Planned. Plans have been outlined for a new $400,000 hospital in Spokane, under the auspices of the Scandia Hospital Association.

Clinic For Public Schools. The county school superintendent of Jefferson county, together with the Junior Red Cross, have joined their efforts to obtain a school clinic at Port Townsend. They hope to secure the services of a nurse and to have the clinic running in a short time. Poor eye sight, diseased tonsils, low mentality and similar impediments are to be sought out and corrected.

New Hospital Opened. The Columbia Valley Hospital, at Pateros, which has been under construction for some time was recently opened for the reception of patients. It is equipped with modern hospital appliances, under the care of Dr. J. E. Fales. It represents an outlay of about $25,000.

New Tuberculosis League. An antituberculosis league for Kitsap County was formed last month at Bremerton. It constitutes a branch of the state Tuberculosis Association.

Object to Septic Tank. Farmers on the South Palouse river have protested the city septic tank of Pullman, claiming it is a menace to the health of people living on the river. Some dairymen claim it is dangerous for their cows to drink the river water, if they wish later to sell the milk.

Dr. W. A. Smith, who practiced in Centralia for a number of years before entering military service, has returned for practice. Since leaving army service he has been located at Goldendale.

New Health Officer. Dr. F. C. Webb has been appointed health officer by the mayor of Oroville and has entered upon his duties.

Dr. Harriet Clark, of Seattle, has returned home for practice after a year's service with the Red Cross in Greece. Her work was in clinics in Athens and other cities, administering largely to sick and needy children.

Dr. Orange Edwards, of Seattle, has returned to private practice after a year and a half of service with the army and eight months with U. S. Public Health Service.

Dr. D. L. Jones, for five years physician to the penitentiary at Walla Walla, has resigned his position and taken up private practice in that city.

Dr. J. O. VanWinkle, who has practiced for thirty years at Oakville, has given up practice on account of his health and moved to southern California.

Dr. C. G. DeFoney, formerly of Philadelphia, has located for practice in Seattle. He was recently discharged from two years service in the army.

BOOK OF REVIEWS

Edited by Kenelm Winslow, M. D.

Experimental Pharmacology. By Hugh McGuigan, Ph. D., M. D. Prof. of Pharmacology, University of Illinois. Cloth, Illustrated. 251 Pp. $2.75. Lea and Febiger, Philadelphia and New York, 1919.

In this book the student is given the details for performing physiologic experiments with all the drugs of importance. The various apparatus and the method of handling the animals experimented upon are fully described. The work would be a source of unholy joy to the vivisector who could revel in all the revolting details. Thus, in Experiment IV, one reads, "Anesthetize a dog and introduce 50 cc. of phenol or HgCl into the stomach. When the animal dies or is killed, make a complete postmortem." The author is not devoid of humor or a sense of economy, for he adds, "It may be best to leave this experiment until the end of some experiment in which a dog is used, and as a final experiment administer one of these poisons".

The work is very well done indeed, and it is only thru such experimental work that the science of pharmacology has developed. Even to one familiar with the subject of experimental pharmacology it becomes a matter of professional pride to contemplate the skill and intellect required for the researches. For there enters into the problem a genius for invention of the most delicate apparatus, and anatomic and surgical ability of no mean order, together with both manual dexterity and mental adroitness in the application of the apparatus, but—more than all else—the planning of the experiments and the logical deductive reasoning in arriving at results. The book is thoroly scientific and commendable in all respects. WINSLOW

The After-treatment of Surgical Patients. By Willard Bartlett, A. M., M.D., F. A. C. S. and Collaborators, Vols. 1 and 2, Cloth, with 435 Original Illustrations. $10.00. C. V. Mosby Company, St. Louis, 1920.

The authors have in these two volumes produced a work of the highest rank. The after-treatment of surgical patients has been a subject hitherto handled sketchily in books on general surgery and with incompleteness in those devoted especially thereto. Too much detail seems hardly possible when specific information is desired in relation to certain postoperative complications and equally so where their prevention, or even the comfort of the patient is the object sought; herein does the work excel. The extensive personal experience of Dr. Bartlett is revealed thruout his writings and has enabled him to accentuate those points so frequently treated in a casual way.

Many excellent illustrations are used to define procedures with exactness and a nice balance is maintained between them and the text. The first volume deals with general subjects, such as, preliminary considerations and anesthesia, sleeplessness, headache, shock, hemorrhage, bedsores, acid intoxication postoperative feeding, bandaging and blood transfusions, to mention a few only. The second volume describes those measures as applied, following operations on the various organs. Some of the chapters are face and cranium, surgery of the abdomen, the stomach in general, appendicitis, the pelvic organs of the female and postoperative treatment of orthopedic patients. The pleasure in reviewing these volumes has been due to their general excellence and inability to find opportunity for anything but commendation.

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611 LOVEJOY ST., PORTLAND, OREGON.

A Text-Book Of Chemistry And Chemical Urinalysis For Nurses. By Harold L. Amoss, M.D. Formerly Chemist, Hygenic Laboratory, U. S. Public Health Service; Assistant in Preventive Medicine, Harvard Medical School. Cloth. 270 Pp. $3.00. Lea and Febiger, Philadelphia and New York.

This little work is most admirably done. The descriptions of matters difficult to present to the mind as pictorial conceptions are original and picturesque. Thus, the conception of ionization, in reference to the case of two salts in the same solution is made clear by likening the positive and negative ions to partners in a Virginia reel. "The positive ion (boy) would swing his partner (girl or negative ion), then swing some other negative ion, back to his particular negative ion, and then to some other and so on so long as all combinations remained in the game". How valuable chemistry is for nurses is open to question but there is no question as to the necessity of a text-book when the subject is required in the best training schools. This work is as excellent as one recently reviewed is otherwise.

WINSLOW

Military Surgery of the Ear, Nose and Throat. Medical War Manuel No. 3. By Hanau W. Loeb, M.D. Major M. R. C., U. S. A. Cloth. 176 Pp. $1.25 Lea and Febiger, Philadelphia and New York, 1919.

This, like the others in the series, is published with the authorization and under the supervision of the Surgeon General. It is a review of the surgical literature of the war so far as it pertains to the ear, nose and throat. At the end of the little volume there are thirty pages devoted to references to the subject in English, French, Italian and German. The author is a well known otolaryngologist and the reviewer had the pleasure of being on the same hospital staff with him at Jefferson Barracks, Mo. The work is most excellent of its kind.

WINSLOW

A Manual of Obstetrics. By John Cooke Hirst, M.D., Associate in Gynecology, University of Pennsylvania; Obstetrician and Gynecologist to the Philadelphia General Hospital. 12mo. of 516 pages with 216 illustrations Philadelphia and London; W. B. Saunders Company, 1919. Cloth $3.00 net.

This book is a companion to the author's Manual of Gynecology, being about the same size and, like it, a very concise, authoritative and up-to-date exposition of the subject, based on twenty years of teaching. While the work is small, the omission of all unimportant subjects and the very terse and systematic style of presentation render the result wholly admirable. In regard to such common obstetric conditions as the toxemia of pregnancy and puerperal sepsis the various indications for treatment could not be expressed more clearly, forcibly, or according to latest knowledge, if three times the space had been occupied in the telling. The book is the crystallized knowledge of a master of the art, expressed in the most concise form compatable with reasonable completeness.

WINSLOW

Sanitation For Public Health Nurses. By H. W. Hill M. B., M.D., D. P. H. Late Director, Division of Epidemiology, Minnesota State Board of Health, etc. Cloth 211 Pp. $1.35. The Macmillan Co. New York, 1919.

This book is written in an original, picturesque and forcible style and, while necessarily elementary in matter, brings out many points of interest to the physician himself. Thus, in speaking of tuberculosis, the writer classes it as two diseases due to the human and bovine germ, lung infection being due to the human type while all other forms originate from either type. The author believes that childhood tuberculosis is bovine tuberculosis in most cases. He ridicules the common fallacy that tuberculosis is a disease of poverty. He remarks that it is as true as that blue eyes are most abundant among the poor. Both statements are equally true but no truer than brown and grey eyes and noses are more frequent among the poor. Why? Because the poor constitute 95 per cent. of the population. If the proportion of rich is considered, he affirms tuberculosis is as common among them as among the poor.

Germ diseases are regarded as natural as life itself. All life comes from life and feeds on life. Man himself is a disease of sheep, cattle and hogs—from their point of view. So bacteria in feeding upon us are performing the most essential and normal function of their lives and disease is in that sense normal and not mysterious nor contrary to natural laws. There are chapters on the infectious diseases, immunity, anaphylaxis, epidemiology, food, water, ventilation, milk, flies and mosquitoes, cleanliness, health and vital statistics—all presented in a most authoritative and forcible manner. The writer is one of our leading bacteriologists and teachers of public health and the little book is a distinct contribution to the subject.

WINSLOW

Home Nursing. By Abbie Z. Marsh, Portland, Ore. 48 illustrations. Cloth, 268 Pp. P. Blakiston's Sons and Co., Philadelphia. $1.25.

This appears to be a sensible little book for use, particularly in public schools, for training girls in some nursing knowledge for home use. It is divided into three parts, the first to the technic of elementary nursing and the other two parts to consideration of nursing in specific diseases and diseases of infancy.

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ORIGINAL CONTRIBUTIONS

A MATHEMATICAL TERMINOLOGY FOR NEOPLASIA AND ITS SIGNIFICANCE.*

WM. CARPENTER MACCARTY, M.D.
ROCHESTER, MINN.

In 1918 I presented a biologic conception of neoplasia and indicated its relation to practical utilization of pathology in the practice of medicine and surgery. At that time neoplasms, as such, were not mentioned; it was believed that the first thing of importance was a clear understanding of a process of neoplasia within the body rather than the gross manifestations which have long been the object of rather crude consideration, clothed in a terminology which differs in the hands of practically every accepted authority on pathology.

Neoplasms have been known to physicians and the laity at least since the beginning of recorded medical history, altho many pathologic conditions which are classified under the heading of tumors are now known not to be of true neoplastic character and do not belong to what we consider neoplastic diseases. Our real knowledge of tumors and especially cancer dates from the time of Hippocrates, but their cellular nature was not known until the time of Johannes Mueller and Rudolf Virchow who described the condition and its many gross manifestations in a language which bears close resemblance to the language which appears in one of the last textbooks upon the subject. Much has been written but little real knowledge has been added to that of fifty years ago.

We still speak of adenocarcinoma, medullary carcinoma, scirrhous carcinoma, comedocarcinoma, colloid carcinoma, and cancer en cuirasse, and content ourselves with these. Modifications of terminology have been made but none has been universally accepted because the bases of their formulation have always been speculative.

The idea or conception that neoplasms have their inception in acquired or inherited rests still prevails not only in the minds of the profession at large but in the minds of expert pathologists. In the minds of some, neoplasia is a thing apart from cellular regeneration or hyperplasia; it represents some intrinsic cellular abnormality or some disturbance of body control over growth; in fact, to many it is vested in mystery, penetration of which must await some unusual discovery. As a matter of fact this discovery will probably be so simple, like most real discoveries, that we will wonder why it has been missed so long. At least the problem might well be approached in the light of known biologic facts. These facts have already been published and need only to be mentioned as a basis for a consideration of their practical application to neoplasia and neoplasms in general.

It has been observed that nature provides for the regeneration of human tissues in two ways which might be called direct and indirect, the former consisting of the division of specific tissue cells and the latter of the division of reserve cells which are set aside for the purpose of regeneration of specific tissues by the process of multiplication, specialization, and differentiation. Direct regeneration of tissues represents the most primitive form of reproduction and doubtless occurs in the reproduction of endothelial tissues and perhaps some others, the reserve cells of which have not been seen. Indirect regeneration is seen in such specific tissues as those represented by squamous cells of the skin, secretory cells of the sebaceous, sweat, and mammary glands, fibrous connective tissue, lymphocytes, erythrocytes, osteocytes, chondrocytes, and glandular cells of the prostate, all of which specific tissues possess reserve cells which have been seen. During chronic destruction of these tissues the reserve cells react in a definite manner with a certain sequence characteristic of the behavior of living cells thruout nature. They become hypertrophic, hyperplastic, and migratory. In the light of biology these may be interpreted as hyperactivity against antagonistic things or forces; increase of mass action against such antagonists, and attempt at change of environment, all of which are defensive reactions and constitute the essential means of self-preservation. But we have not been accustomed to think of the human body excepting as a whole. We have not been sufficiently convinced of the principle of evolution to make us focus our attention upon the actual facts pertaining to the development of our complex being from a single microscopic cell such as is the ovum. While we have realized that this cell contains the potentiality of the complex human body, we have failed to appreciate and emphasize such phenomena as differentiation, specialization, and regeneration, which are coincident to development and preservation after development.

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*Read before the Twenty-fifth Annual Meeting of Utah State Medical Association, Salt Lake City, Utah, Sept. 9-10, 1919.

We have marvelled at and accepted the conception that, following the segmentation of the ovum, there develop three layers of cells to which we have been content to attribute the orgin of all our tissues and dogmatically believe and teach that once a derivative of one of the layers always a derivative of the specific layer. This is a crude morphologic conception which had its inception in the infancy of embryology. It is an heirloom difficult to throw aside in so far as its real significance is concerned. As a matter of fact, the evolution of the many tissues of our body may be more accurately expressed by stating that all of the different specific tissues arise from the single cell by the process of segmentation, differentiation, and specialization; instead of saying that we have ectoblastic, mesoblastic, and endoblastic tissues and trying to identify each adult tissue with one of these, it might be more correct to state that from the ovum all of the different kinds of cells arise. Each tissue cell deserves a name; each must be regenerated during life or be so plentiful that partial destruction will not be fatally detrimental to the whole communism, of which they are specialized and differentiated parts. These facts must be clearly appreciated before either neoplasia or its resultant neoplasms can be considered scientifically and described consistently and accurately. The three reactions (hypertrophy, hyperplasia, and migration) which have been shown to occur in eleven tissues of the human body may be hypothetically applied to all of the known tissues, altho some are so highly differentiated and specialized that they probably possess no means by which they may be regenerated. This may be true of the parenchyma of the nervous system and perhaps of many if not all of the so-called end-organs of this system. It may also be true of muscle. Aside from these all our tissues are capable of regeneration either directly or indirectly, altho the degree of regeneration varies for different tissues. The rate of regeneration for each tissue, however, must be determined experimentally at some future time.

One may diagramatically express the reactions as follows:

	(adeno-)	
	(audito-)	
	(cardiomyo-)	
	(chondro-)	
	(endothelio-)	
	(epithelio-)	
	(erythro-)	
	(fibro-)	
	(glio-)	
	(gusto-)	
	(leiomyo-)	
	(leuko-)	
Primary (hypertrophy)	(lipo)	
Secondary (hyperplasia)	(lympho-)	Cytoplasia
Tertiary (migration)	(melano-)	
	(myo)	
	(myxo-)	
	(neuro-)	
	(odoro-)	
	(perithelio-)	
	(pilo-)	
	(rhabdomyo)	
	(sebo-)	
	(tactilo-)	
	(tendo-)	
	(visio-)	
	(etc.)	

There are other factors which should be known in connection with the reactions. Thus the anatomic location of the reaction, gross manifestations, and the degree of cellular differentiation must be known in each case, since these have something to do with the limits of the neoplastic process and hence give some idea of prognosis.

They may be added to the diagram just presented in the following manner:

Location.	Gross form.	Biologic and clinical reaction.	Tissue involved.		The degree of differentiation.
			(audito-	)	
			(adeno-	)	
			(cardiomyo-	)	
			(chondro-	)	
			(endothelio-	)	
			(epithelio-	)	
			(erythro-	)	
	(circumscribed	)	(fascio-	)	
Capito-	(diffuse	)	(fibro-	)	
Collo-	(cystic	)	(glio-	)	
Cranio-	(extracystic	)	(gusto-	)	
Auriculo-	(ductal	)	(leiomyo-	)	
Naso-	(intraductal	) Primary	(leuco-	)	
Linguo-	(periductal	) Secondary	(lipo-	)	(Primary)
Labio-	(papillary	) Tertiary	(lympho-	) Cytoplasia	(Secondary)
Laryngo-	(polypoid	)	(melano-	) with or	(Tertiary)
etc.	(ulcerated	)	(myo-	) without	(Differenti-)
			(myxo-	)	(ation.)
			(neuro-	)	
			(odoro-	)	
			(osteo-	)	
			(perithelio-	)	
			(pilo-	)	
			(rhabdomyo-	)	
			(sebo-	)	
			(tactilo-	)	
			(tendo-	)	
			(visio-	)	
			(x-	)	

The terminology which is expressive of these facts may be abbreviated in the following manner:

Location.	Gross form.	Biologic and clinical reaction.	Tissue.		Degree of differentiation.
			(audito-	)	
			(adeno-	)	
			(cardiomyo-	)	
			(chondro-	)	
			(endothelio-	)	
			(epithelio-	)	
			(erythro-	)	
			(fascio-	)	
			(fibro-	)	
Capito-	(circumo-	)	(glio-	)	
Collo-	(diffuso-	)	(gusto-	)	
Cranio-	(cysto-	)	(leiomyo-	)	
Auriculo-	(extracysto-	)	(leuco-	)	
Naso-	(intracysto-	) 1	(lipo-	)	(1)
Linguo-	(ducto-	) 2	(lympho-	) Cytoplasia	(2) D.
Labio	(intraducto-	) 3	(melano-	)	
Laryngo-	(extraducto-	)	(myo-	)	
etc,	(papillo-	)	(myxo-	)	
	(polypo-	)	(neuro-	)	
	(ulcero-	)	(odoro-	)	
			(osteo-	)	
			(perithelio-	)	
			(pilo-	)	
			(rhabdomyo-	)	
			(sebo-	)	
			(tactilo-	)	
			(tendo-	)	
			(visio-	)	
			(x-	)	

This method of describing neoplasia is similar to that utilized by chemists to describe the structural factors in complex compounds. Like that of chemistry it serves the expert and is of little practical value in the daily use of compounds. Without them, however, the expert would be at a loss to convey his ideas to his fellow expert. The factors to be remembered in this biologic conception of neoplasia are, however, so few in comparison with those of chemistry that they can be easily mastered

They may also be symbolically expressed as follows:

			Au		
			Ad		
			Cm		
			Ch		
			En		
			Ep		
			Er		
			Fa		
			Fi		
	(Δ)		Gl		
Capito-	(Λ)		Gu		
Collo-	(O)		Lm		
Cranio-	(φ)		Le		
Auriculo-	(Θ)	1	Li	1	
Naso-	(Τ)	2	Ly	2	D.
Linguo-	(π)	3	Me	3	
Labio-	(Ψ)		My		
Laryngo-	(Ρ)		Mx		
etc.	(Ω)		Ne		
	(Σ)		Od		
			Os		
			Pe		
			Pi		
			Rm		
			Se		
			Ta		
			Te		
			Vi		
			X		

by every medical student. This would not require so great effort as is now expended in attempting to master the terminology of neoplasms as it is given in textbooks. If a student has recourse only to one textbook, he may be happy, but, when he comes in contact with other books or with students who have used other books, he will soon find his terminology of neoplasms somewhat confused and hence come to the conclusion that the pathology of neoplasms is far from being a mathematical or exact science. If the student has a knowledge of exact sciences such as mathematics, physics, and mechanics, he will soon be subjected to keen disappointment early in his medical career. His former ideals of medicine as science will doubtless fade away and leave him with nothing to cling to but the noble spirit which has been back of the practice of medicine in its feeble efforts to become scientific.

And now we must have some colloquial terminology for neoplasms which are the results of neoplasia. The physician and surgeon usually think of these and not of the process of neoplasia. Pathologists have likewise thought only of neoplasms but in doing so they have given their practical colleagues a code of communication of ideas of them which is filled with synonyms, based on crude analogies to unrelated things and in no way describe anything but the grossest manifestations which were known a century and perhaps centuries ago. In so far as helping the physician and surgeon in his efforts to prevent, ameliorate, and cure the pangs produced by neoplasms, he has failed to progress. He has merely kept them alive with traditions of the ancient masters who did well within their means.

In so far as neoplastic cells are concerned they do certain things, namely, they reproduce themselves, sometimes slowly, sometimes rapidly; they sometimes become rapidly differentiated* into adult tissue cells, for which they were originally intended as regenerative (texto-blastic) cells; they sometimes become incompletely differentiated and simulate adult tissues in arrangement and cellular polarity without attaining the complete morphology of any adult tissue; these are frequent phenomena in many neoplasms; they sometimes remain absolutely undifferentiated and hence resemble in no degree any adult tissue.

As a result of these facts all neoplasms may be divided into three groups, namely, *textoms, pseudo-textoms, and blastoms.*

*Textoms*** embrace all neoplasms composed of one or more completely differentiated tissue cells (textocytes.) Such neoplasms may increase in size, but their growth is very slow as a result of the rapid, complete differentiation of cells atrophy resulting from interference with local circulation.

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*By differentiation we mean in biology the structural or morphologic change coincident with special function.

**The term textoma is derived from "textus" meaning tissue and "oma" meaning tumor. Altho this combination of Latin and Greek may seem inconsistent to linguistic purists, such combinations have become common in science. In fact the English language is made up of many languages.

into adult tissue cells. Such tumors produce detrimental effects by virtue of pressure, by which they may interfere with the natural functions of neighboring structures or may produce actual destruction of neighboring organs by the production of

Neoplasms, such as have been called "adenomas," "fibromas," "myomas," "chondromas," and "osteomas," if complete differentiation can be demonstrated, belong to this group. The main difficulty with utilizing such terms as fibromas, and myomas, arises from the fact that complete tissue differentiation has not been the only criterion for calling a tumor adenoma, fibroma, or myoma. Each of these has, heretofore, in practice, represented also conditions of incomplete degrees of tissue differentiation, since the terms may easily include neoplasms somewhat resembling true textomas but proving to be pseudo-textomas upon a careful high power examination of cells. It must be remembered always that the regenerative cells of a textoma, as well as the rest of the regenerative cells of the body, may take on rapid growth and cause a textoma to become either a pseudo-textoma or a blastoma.

Pseudo-textomas embrace all of those neoplasms which are composed of cells which resemble but do not have complete adult morphology, in other words, composed of cells which have not reached the stage of complete differentiation. Many neoplasms present this condition, and the pathologist is very frequently unable absolutely to recognize the adult tissue which the cells of the neoplasm are apparently attempting to evolve. The cells of such a neoplasm, as the so-called adenocarcinoma or alveolar sarcoma, may arrange themselves to form in complete tubes or acini without the cells having the adult morphology of any cells of the body which are normally arranged into tubes or acini. This fact has frequently caused great difficulty in differentiating endotheliomas and adenocarcinomas, a differentiation which is probably only of academic or scientific interest and does not materially affect the patient, since there is no reason to make us believe that a neoplasm of endothelioblastic origin is any more or less malignant or benignant than one of adenoblastic origin.

Some pathologists seem to think, at least judging from impressions received from many, that there is a difference in malignancy between what they call an endothelioma and an adenocarcinoma, but there is considerable dispute about what they really call endothelioma, and this dispute has not been satisfactorily settled. Hence they may be incorrect in their generalizations. In my experience, when the cells of a neoplasm are so highly differentiated that I can definitely prove that the neoplasm is an endothelioma, I can see no evidence of rapid growth. The same may be said to be true of any neoplasm composed of glandular cells. When such cells are so highly differentiated that I can positively state and prove that they are of a certain specific glandular type, then I see no evidence of rapid growth. In both cases I consider that I am merely dealing with neoplasms composed of adult tissues, and I immediately put them under the heading textomas, and consider them as having the characteristics given under this heading.

From a clinical standpoint, pseudo-textomas are growing neoplasms which not only have the detrimental qualities of destroying by pressure as have the textomas, but also have the power of direct invasion and metastasis by virtue of their undifferentiated and partially differentiated cells.

Blastomas embrace all neoplasms which are composed of cells which are undifferentiated, regardless of origin. In most cases the origin is indeterminable, and when it is determinable it is largely so from location alone. If one knows the normal tissues of an organ and finds all but one tissue perfectly differentiated, it might naturally be supposed that that one is taking part in the neoplastic process. This method of identification is largely one of exclusion, altho one may sometimes attain some suspicions from size of the cells. If there are any morphologic characteristics which suggest a normal adult tissue, then the neoplasm belongs to the group of pseudo-textomas.

These neoplasms are clinically malignant, and by virtue of their being composed of completely undifferentiated cells they are more primitive in type and, hence, are governed by the laws of cells rather than the laws of multicellular organizations. They are cytotypic and not textotypic. They, therefore, have a greater power of reproduction and migration and, hence, are more apt to be malignant.

In the second group (pseudo-textomas) great confusion has arisen in the older terminology by virtue of the fact that many pathologists have frequently attempted to state the exact tissue which the neoplastic cells resemble without being absolutely positive. Thus some pathologists call certain neoplasms endotheliomas, some carcinomas, some epitheliomas, and some sarcomas, when as a matter of fact the real nature cannot be absolutely established, and the establishment of the fact would make no special difference in the treatment or outcome in so far as the patient is concerned. Such disagreement on the part of the pathologists merely serves to confuse the clinician and make his confidence in the pathologist somewhat disturbed.

If one can be absolutely certain of the tissue which is being structurally approached by the neoplastic cells, then one may add the root of the tissue name to the term pseudo-textoma. This is, however, of no great value to the clinician excepting perhaps to give some idea of the organ from which a metastatic neoplastic condition arose. In actual experience even this is not of very great importance because usually he already knows or, if he does not know the origin, he does know that he can do practically nothing for a patient with metastatic growths. But one may, if recognition of the tissue be absolutely possible, speak of adeno-fibro-myo-osteo-chondro-etc. pseudo-textomas.

In the third group (blastomas) which consists of neoplasms composed of undifferentiated cells, no denominating name can be attached.

The most important factor relative to neoplasms is their benignancy or malignancy. This factor is dependent upon the rapidity of growth, the degree of cellular differentiation, encapsulation, locality of the growth, migration of the cells, and the natural defensive mechanism of the individual possessing the growth.

The last item is not sufficiently understood, but there are a few things, regarding which something is known, namely, lymphocytic infiltration, fibrosis, hyalinization and calcification, all of which play a part in surrounding neoplastic cells in varying degrees in the order named. Perhaps in the early stages of neoplasia these general defensive reactions sometimes destroy neoplastic cells. This is, however, not known, altho it seems possible, in view of that fact that disintegrating neoplastic cells are frequently seen completely surrounded by one or some of these reactions. Despite them, however, fatal neoplasia occurs frequently. How much they impede the growth remains to be shown.

The neoplastic conditions which have come in my experience have been grouped according to the conception herewith presented, and this conception has served efficiently from a clinical as well as a biologic standpoint. I have been unable to conform experience to existing textbook terminology or the terminology to experience.

From a practical as well as from a scientific standpoint it seems wise to divide the science of pathology, in so far as neoplasia is concerned and perhaps more exact sciences, into a science for the practitioner and one for the expert. We all know something about chemistry and utilize chemical compounds efficiently without knowing their exact chemical formulas which every expert chemist knows. We have names for these compounds and the names are associated with certain essential characteristics, and with these we work efficiently, but the expert must know the formula in order to understand many of the characteristics which it is not necessary for us to know in ordinary life. This, in no way, prohibits the practitioner from knowing the expert's conception and terminology. In fact he should be taught it just as he was taught detailed chemical terminology and formulas during his course of education.

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THE TECHNIQUE OF WHOLE BLOOD TRANSFUSIONS AND ITS VALUE IN ASSOCIATION WITH SURGICAL PROCEDURES IN THE TREATMENT OF PERNICIOUS AND OTHER SEVERE ANEMIAS.

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(*Concluded*)

Immediately after a splenectomy a leucocytosis occurs, varying from 10,000 to 25,000. In a series of 6 cases in which a blood count was made just after section of the pedicle, the white count was found to range from 10,000 to 12,000 within five to ten minutes after splenectomy, this being a lymphocytic leucocytosis. In these 6 cases, just before operation, the average leucocyte count was 4,000, the lymphocytes averaging 35 per cent., while within ten minutes after the spleen pedicle was tied, the average lymphocytic count was 67 per cent. This lymphocytosis gave way to a polymorphonuclear leucocytosis within twenty-four hours, which persisted for a number of days. In all of our cases the white count has persistently maintained a much higher level than it did before operation. The primary lymphocytosis is probably due to the manipulation of the spleen before its pedicle is tied. In most cases there was a marked increase in the number of blast cells beginning within two to three days after operation. In 12 per cent. of cases Howell-Jolly bodies were noted primarily before any treatment; after one or more transfusions they were noted in 40 cases; and after splenectomy they were present in all, appearing within a day or two after operation.

A low platelet count was a rather constant finding primarily. Some increase in platelets was noted constantly following the transfusion, and a marked increase following splenectomy.

Of the 69 cases operated there were 6 deaths, a mortality of 8.5 per cent., which included all cases that died in the hospital, one living four weeks and another about two months; 5 cases had recurrence of trouble at end of four months and died at intervals between 8 and 12 months after operation; 10 cases began to fail at end of 6 months and took about the same course; 48 cases did well for more than 12 months; 10 cases are in good condition at end of 2 years; 8 cases at end of 3 years; 4 cases at end of 4 years and 1 case is in good condition 5 years since operation.

BLOOD TRANSFUSION.

The most important part of transfusion is the selection of a healthy donor, and the making of hemolytic and agglutination tests between the two bloods. In addition to this, it is well to determine as nearly as possible the exact condition of the blood before transfusion in both donor and the recipient. This examination should consist of a red and white cell count, hemoglobin percentage, coagulation time, a differential count, and a description of the various types of corpuscles.

Donor. In selecting a donor it is most important in addition to making hemolytic or agglutination tests, that a careful history be obtained from the donor, also a complete physical examination made, including a Wassermann test. Donors should not be chosen from persons giving a history of recent attacks of typhoid fever, pneumonia, diphtheria, tonsillitis, malaria, or influenza, or from persons suffering from tuberculosis, chronic arthritis, rheumatism, or where there is a history of hemophilia.

Hemolytic and Agglutination Tests. A hemolytic or agglutination test of each blood upon the other should always be made before transfusion, because it has been found that in a considerable percentage of cases there is a tendency of the serum of one blood to cause a disintegration of the red cells of the blood from another individual, even when the latter be a near relation. While the blood from members of the same family is more apt to be compatible with each other than an alien's blood, still it is never safe to use even a close relative as a donor without making a hemolytic test between the bloods to be mixed.

Agglutination Test. During the past year the reader has been determining the hemolytic action of the blood by the Moss method, the technique of which has been modified by Brem. This method is based on the principle that before the serum of one blood will cause an hemolysis of the corpuscles of another, it will first or simultaneously cause an agglutination of the corpuscles. The reverse, that all cases that show agglutination will also show hemolysis, is not necessarily true, only occurring in about 20 per cent. of cases. Adopting this principle, all bloods are classified according to the agglutinative properties of their elements into one of four groups. In selecting a donor it is always advisable to have one whose blood belongs to the same group as that of the patient. If this is impossible, the donor's blood should belong to a group whose corpuscles are not agglutinated by the serum of the patient. The bloods of group IV answer this requirement for all the other groups, as its corpuscles are not agglutinated by the serum of any group. Fortunately, group IV is the most common group, Moss having found that 43 per cent. of all individuals belong to this group.

Moss found that all bloods, whether normal or pathologic, could be classified into four groups by agglutination tests of the serum against the corpuscles. He has found the groups to be as follows:

Group 1. 10 per cent.. Serum does not agglutinate corpuscles of any group. Corpuscles are agglutinated by serum of II, III and IV.

Group II. 40 per cent. Serum agglutinates corpuscles of groups I and III, not IV. Corpuscles agglutinated by serum of III and IV, not I.

Group III. 7 per cent. Serum agglutinates corpuscles of groups I and II, not IV. Corpuscles agglutinated by serum of II and IV, not I.

Group IV. 43 per cent. Serum agglutinates corpuscles of groups I, II and III. Corpuscles are not agglutinated by any serum.

The serum of one group will not agglutinate the corpuscles of blood belonging to the same group.

In grouping the blood, the unknown blood should be tested with a blood whose group is known. This "standard" blood must belong to either group II or III, in order to be of any value in grouping other bloods. The group to which a blood belongs becomes fixed by the third year of life, and remains constant. It is not influenced by age, disease or transfusion of blood belonging to another group.

Technique of Grouping Blood. Ten to twenty drops of blood are collected in a small test tube from the lobe of the ear. This is allowed to clot, and then the tube is centrifuged so as to obtain a clear serum above. This is the protective serum when used with its own corpuscles, but when it is used with the corpuscles of another blood, it is called the agglutinating serum. In another small test tube are collected two drops of blood in about 1 cc. of solution, composed of 1.5 gm. sodium citrate, 0.9 gm. sodium chloride in 100 cc. of distilled water. This gives approximately a 5 per cent. suspension of the corpuscles. This tube requires no further preparation.

Upon cell slides, rimmed with petrolatum to prevent evaporation, are made ordinary hanging drops.

ON ONE SLIDE ARE PUT:

2 loopfuls of standard serum (agglutinating serum), plus

1 loopful of the suspension of corpuscles of the blood to be tested, plus

1 loopful of the protecting serum; that is, the serum from the same blood as the corpuscles.

ON THE OTHER SLIDE:

2 loopfuls of the unknown serum, (of the blood to be tested), plus

1 loopful of the suspension of corpuscles from the standard or known blood, plus

1 loopful of its protective serum.

An endeavor should always be made to have the donor and the recipient of the same groups, so reducing to a minimum the possibilities of reactions. If in an emergency blood must be given immediately, or if the recipient be a member of group I or III, the rarer groups, certain deviations may be practiced in which bloods of unlike groups can be used. Under such conditions the serum of the recipient must never agglutinate the corpuscles of the donor, while the serum of the latter may agglutinate the corpuscles of the patient. The serum of the donor, as it enters the blood stream of the recipient, is diluted to such an extent as to be practically inactive. The lack of agglutination of the patient's corpuscles is in part prevented by the fact that the recipient's corpuscles are protected by its own serum; i. e., the protective serum.

Vincent's Method of Determining the Moss Grouping of Blood. Because of the technical difficulties of grouping bloods in a private home without any laboratory facilities, Vincent worked out a method by which a patient's blood can be determined in from three to five minutes, requiring no laboratory facilities.

In making the test one must have on hand a stock serum from an individual whose blood belongs to group II and from one in group III. These stock serums are obtained by drawing blood from an individual in group II and from one in group III. The serum is separated from the blood by centrifuging or allowing the blood to clot, the serum from which is placed in a sterile bottle. The serum is preserved by adding to it enough sodium citrate to make a 1.5 per cent. solution, and chloroform is added to the extent of 0.3 per cent. These serums if kept sterile can be kept indefinitely.

Technique of Grouping the Blood. One drop of group II serum is placed on a glass slide near one end and one drop of group III serum on the same slide near the other end. A drop of blood from the person to be grouped is mixed with each of the serums on the slide and the reaction noted. Clumping of the corpuscles, if it takes place, will occur in from one to three minutes, and can be readily seen with the naked eye. The various groups will be noted by the following reactions:

1. If agglutination of the corpuscles takes places in the group II serum, and not in the group III serum, the blood being grouped belongs to group III.
2. If agglutination is noted in the group III serum and not in the group II serum, the blood being grouped belongs to group II.
3. If agglutination is noted in both group II and group III serums the blood being grouped belongs to group I.
4. If agglutination does not occur in either serum, the blood being grouped belongs to group IV.

In noting the reaction, if by simply looking at the slide with the naked eye there is any doubt as to whether or not agglutination has taken place, this can be definitely determined by placing the slide under the microscope. From the above it may be noted that, if one has on hand a stock serum belonging to group II and to group III, the technique of grouping blood is very simple and can be done in a few minutes, even without any laboratory facilities. The simplicity and rapidity with which it can be done is the only advantage it has over Brem's technique as previously described.

The determination of the hemolytic reactions of blood by the Moss method in the selection of donors has proven very satisfactory in our hands. Since adopting this method over 400 transfusions have been made, encountering only two cases of hemolysis. The milder reactions have been rare. These have been manifested by a chill in 5 per cent. of cases and by temperature occurring on the same or following day in 10 per cent. of cases.

Except in extreme emergency cases one is never justified in making a blood transfusion without first having made a hemolytic test between the two bloods to be mixed. Even between near relatives, such as sister to sister, or parent to child, etc., severe fatal hemolysis may occur from mixing the two bloods. In case of a large family in which the father and mother are not in the same blood group, usually some of the children will be in the same blood group as the mother, and some in the father's group, and occasionally some in still another group. Thus it is plain that a brother might be a suitable donor for one brother, but not for another; also he might be a suitable donor for one parent and not for another, thus making it a dangerous procedure to transfuse one member of a family from another member without first determining the hemolytic action of one blood with another.

Reader's Method of Transfusion. The method is an indirect, closed method and consists of drawing blood into a specially designed glass tube, then injecting it into the vein of the recipient. The tube is coated inside with solid grocer's paraffine, and liquid paraffine is floated on top of the blood, preventing the blood from coming in contact with the air.

Description of Tube. The tube to be described is a modification of the Brown tube, which was modified with the object of making a venous transfusion tube and also a tube more easily constructed. It consists of a glass cylinder 5 cm. in diameter, with a cannula leading from one end, the other end being drawn out into a tube about one cm. in diameter, to which a Y connection containing a two way valve is made. To one arm of the Y a rubber tube is attached for suction to aid in filling the tube, and to the other arm a rubber bulb is connected to aid in injecting the blood. The tube differs from the Brown tube in that there is no side tube coming off from the cylinder, and the upper end of the cylinder, instead of being closed with a large cork, is drawn out into a tube for the Y connections as described above. The cannula part of the tube is so constructed that it can be inserted directly into the vein of both donor and recipient. An open dissection of the vein of both donor and recipient is made for two reasons: First, if the operation were done subcutaneously it would be necessary to use a needle with a rubber connection to the cannula, which connection would make a roughened area which would favor clotting, whereas with the smooth, paraffine-coated cannula there is no such tendency. Second, after the tube is filled with blood, the cannula can be inserted into the vein of the recipient without delay, an essential feature after blood has been withdrawn.

Preparation of Tube. The tube should be cleansed by washing with water, alcohol, and then with ether, and, after it is perfectly dry, two ounces of melted grocer's paraffine is poured into the tube thru the upper end. It is then wrapped in a towel and placed in a steam autoclave for fifteen minutes under fifteen pounds of pressure, after which, with sterile rubber gloves over the hands, the tube is rolled around while cooling, so that every part of the inside is covered with melted paraffine and any excess allowed to run out of the large end. Care should be taken not to allow the cannula to become plugged from paraffine. If it does, the tip is warmed over a flame and the paraffine allowed to run back into the tube, Sterilizing the rubber tubing, Y valve, and mouth piece is done by placing them in a towel and autoclaving in the same way and at the same time as the transfusion tube, or by boiling them for twenty minutes. The atomizer is thoroly washed with alcohol to sterilize it. When ready to use, the connections are all made and two ounces of sterile liquid paraffine aspirated into the tube thru the cannula by means of suction at the mouth piece. A more simple method of sterilizing the tube consists of first pouring the melted paraffine into the tube, then carefully heating the tube over a gas burner until the paraffine in the tube begins to smoke. The excess paraffine is allowed to run out of the tube, and the tube is carefully rolled with the hands while the paraffine is cooling, thus evenly coating the entire tube.

Technique of Transfusing the Blood. The arms of both the donor and the recipient are prepared as for surgical operation. Proper constriction of the donor's arm is essential, if one wishes to draw off a large quantity of venous blood rapidly. Constriction by means of a rubber tube is not satisfactory, because the amount of pressure is not known, nor can the pressure be varied as desired. An ordinary blood-pressure apparatus placed about the arm and pumped up to 50 to 80 mm. of mercury, depending upon the rapidity with which the blood flows, makes an excellent constrictor. By this means the venous circulation is impeded, but not the arterial, thus making the entire arm a blood reservoir, increasing the pressure in the vein selected.

It is imperative to use a separate set of instruments on different tables for donor and patient, in order not to transmit infections from patient to donor. Under local anesthesia, using one-half of one per cent. novocaine solution interdermally, an incision is made over the cephalic vein just above the elbow on both the donor and recipient, and a ligature placed about the vein on its proximal portion in the donor, and on its distal portion in the recipient. Small Carrel clamps are placed on that portion of the vein away from the ligature in each patient and a longitudinal incision 3 mm. long made thru all coats of each vein midway between clamps and ligature. Small retention clamps are placed on the two edges of the incision in each vein in order to hold them open.

Just before the tube is inserted into the donor's vein, about 25 cc. of sterile liquid paraffine is aspirated into the tube. The cannula is placed pointing distally into the vein of the donor, and the Carrel clamp released from the vein. Slight suction will facilitate filling the tube with blood. The blood is well protected from the sides of the glass by the paraffine coat. As the tube fills, the liquid paraffine floats on the blood, thus preventing the blood from coming in contact with the air. As soon as the tube is filled, which in our experience axerages about three and one-half minutes to withdraw 600 cc. of blood, the Y valve is closed, the cannula removed from the vein and the small clamp reapplied to the donor's vein.

The cannula is now quickly placed in the lumen of the vein of the recipient and the Carrel clamp released. The blood will now flow into the vein of the recipient toward the heart, the velocity of which flow may be controlled by careful pumping of the rubber atomizer bulb. As soon as it is evident that the blood is flowing properly, an assistant may release the constrictor from the donor and ligate the vein distally to the opening from which the blood has been taken. Not more than five minutes should be utilized in obtaining the blood. The tube can be emptied in about a minute and a half, but greater deliberation is advisable so that possible hemolytic phenomena may be noticed, acute dilatation of the heart avoided, and so that seration of this venous blood may be more ready. Inhalation of oxygen in very weak patients is advisable during the injection of large amounts of venous blood. The length of time required to fill the tube with blood varies with different donors. It is well to have two tubes ready, so that if it is found that the first tube fills slowly, taking more than five minutes to get the required amount, the process may be repeated with the second tube, aspirating only the remainder of the required amount of blood.

Factors of Safety. The chief points to be borne in mind in blood transfusion are: The avoidance of hemolysis, air embolism, clot embolism, and acute dilatation of the heart.

The greatest risk from the operation is that from hemolysis. This danger can be avoided in the vast majority of cases if careful hemolytic and agglutination tests are always made preliminary to transfusion. While laboratory methods have their limitations and are not infallible, still, if the tests are always carefully made, the danger from hemolysis is slight.

The danger from air embolus and clot embolus can always be avoided if proper care is exercised in carrying out the technique of the operation.

The danger of acute dilatation of the heart is probably not as great as is generally supposed. So far, the reader has not encountered a case in which there was any evidence of the heart having been embarrassed by the transfusion. It is well, however, not to inject the blood too rapidly in very weak and anemic patients, especially if it be the first transfusion.

Reactions Following Transfusion. The majority of our patients have not experienced any noticeable reaction whatsoever. In about five per cent. of cases a slight chill has occurred, followed by a temperature, and in an additional five per cent. a mild temperature developed the same evening or day following transfusion. This applies to transfusions in which the patient and donor were in the same blood group, as classified by Moss. Whenever we deviated from this and used a donor from a different blood group than that of the recipient, as was occasionally necessary, the transfusion was usually followed by a marked chill and temperature. A donor from a different group than that of the recipient was never used, except when the patient was in one of the rarer groups and it was difficult to find a donor belonging to the same group. In these instances a donor was chosen from group IV, a group whose corpuscles would not be agglutinated by the serum of the recipient.

A number of operators using the citrate method have noted a comparatively high percentage of reaction following the transfusion. There is no method of transfusion free from reaction. The exact cause of the mild reactions between bloods which have been tested as compatible is unknown. It is evident that some change invariably takes place in the blood as soon as it leaves the circulation. The conspicuous change which takes place in the blood as soon as it leaves the circulation is that of clotting.

Drinker and Brittinghams[7] experimental work on transfusion reactions is very interesting. They found that the early changes incident in blood coagulation result in the appearance of abnormal proteins in the blood, and that there is no method of transfusion with the exception of vessel to vessel suture free from the possibility of their production. There is no practical method for citration of large quantities of blood, which prevents these early changes of coagulation. The methods in use simply arrest the process. Drinker and Brittingham found that the citration of blood alters the erythrocytes so as to render them more susceptible to hemolysis when injected into the circulation.

After making a thoro study as to the cause of transfusion reactions in citrate transfusions, they concluded that three elements make up the final total of reactions in citrate transfusion: (a very rare gross incompatibilities which escape in vitro detection; (b) changes in the plates, part of the process of coagulation; (c) direct action of the sodium citrate on red cells promoting hemolysis.

SUMMARY.

1. Transfusion of blood is the most efficient means at our command for treating hemorrhage and the majority of hemorrhage diseases, as well as many of the wasting diseases.

2. The proper selection of donors by adequate preliminary tests for compatibility is essential.

3. Amounts from 500 to 800 cc. of whole blood, repeated at intervals of from seven to fifteen days, are most desirable.

4. A simple, rapid method of transfusion should be used. This should preferably be one in which plain, whole blood is administered without mixing with any foreign substance; furthermore, the blood should not be unduly exposed to the air, and the interval that it is out of the circulation should be reduced to a minimum. An indirect, closed method by means of a prepared container seems to be the best answer to these requirements.

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THE TREATMENT OF CANCER OF THE BREAST.*

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Preventive treatment of cancer of the breast is limited, yet is of great importance, viz; prevention of mastitis and its careful treatment after it has occurred; the removal of all benign tumors of breast. A benign tumor can never be more benign, and any of them may become malignant. A. J. Ochsner has said, if all small growths were removed with the same thoroness as when sure of malignancy, many lives would be saved.

Malignancy is not easy or even possible to diagnose always. It is far better in my judgment to remove the whole breast in twenty cases for benign tumors than to allow one woman, in whose breast malignancy already existed, to escape operation because it was not diagnosed.

The cure of cancer of the breast depends upon the complete extirpation of the disease before it has extended to inaccessible or irremovable parts. Therefore, early, thoro operation, completely removing the disease at a time when it is a local disease only, is the end devoutly to be desired and attained. It is wise, in my judgment, never to leave a growth in the breast. Apparently harmless neoplasms too often produce malignant metastasis. Benign growths if removed early can never be followed by malignant metastasis. Thoro, complete removal of all tumors of the breast is the only safe course to follow. Partial removal, limited operations to save deformity are wrong. This kind of operation is better not done at all. They are too often followed by rapidly appearing malignancy. When all of the disease is removed, then and then only is the patient cured. When the slightest vestige of the disease remains recurrence must be expected.

Frequent examinations or manipulations of these growths in the breast often loose the little malignant cells into the lymphatic stream and cause malignant metastasis. Never remove a piece of any tumor for microscopic examination. It is a dangerous proceeding. A surgeon who is not qualified and trained to recognize malignancy by direct exploration is not prepared to do this work. If doubt exists in the mind of the surgeon as to whether the disease be malignant, direct incision into the growth is safe, provided the knife be laid aside and the wound packed with sterile gauze and nothing be allowed to come into the operative field which was used in this explorative examination.

In the treatment of cancer there is no known method which has so much to offer as surgery. To employ any other method to the exclusion of surgery is unjust to the patient.

Dr. Jos. C. Bloodgood has said, "Based upon my own experience, the careful reading of the literature and personal discussions with colleagues I am convinced that, where the experience of surgeons has demonstrated a known percentage of cures, radium and the x-rays should not be attempted. For example, in operable tumors of the breast, in early lesions of the lip and in local tumors of the skin everywhere, surgery has demonstrated its ability to offer a larger possibility of cure than any yet known treatment. I have a number of cases of very early lesions of skin which should have been completely excised under local anesthesia in a few minutes, but have grown rapidly after radium and the x-rays, and have become inoperable.

Thos. J. Watkins has said he believed an excessive amount of radium lessens the resistance of the tissues and that carcinomata grow more rapidly.

Jeunet (*Presse Med.*, Paris, March, 1919,) said he was convinced that radium-charged needles inserted into the neoplasm is the method par excellence. One may use as many needles as he likes with a minimum of discomfort. He claims with these needles one can induce complete retrogression of many tumors, render others operable which had been inoperable, ward off or abort recurrence, abolish pain, deoderize and otherwise cure "morally" inoperable and incurable cancers. He cites no cases or statistics, however.

In my judgment there should be no procrastination in deciding upon a method of treatment in tumors of the breast. We do know that cancer of the breast is eminently a curable disease by thoro eradication, if seen early. I believe with Warbasse that to await an absolute diagnosis is a surgical crime. If there is a reasonable possibility that cancer does exist or may later occur in a tumor of the breast, a radical operation should be done in all cases. I have heard the statement made, and I thoroly concur in it, that it would be much more to the credit of surgeons, were they less concerned in trying to make accurate diagnoses in breast tumors and more concerned in rendering them harmless. We all know, unfortunately, that the diagnosis is only too easily made of malignancy, when many of these cases come to us, and yet there are too many cases who have been told that their breast tumors were benign and not to worry about them, who have become victims of cancer. I have seen a goodly number of these.

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*Read before the Twenty-Seventh Meeting of Idaho State Medical Association, Boise, Ida., Oct. 1-2, 1919

Contraindications should be recognized. There are contraindications to the simple operation, but to modern radical operations they are fewer. Where metastases have gone along the entire length of the subclavian vein, are in the supraclavicular triangle, where firmly fixed to the chest wall, which means the bones are probably involved, where extensive skin metastasis exists, or where metastasis has gone to remote parts, then it may be too late; yet many of these cases may still be operable. Only where the disease has extended beyond the median line of chest or involves irremovable structures are they absolute. Very extensive removal of the large nerve trunks, the large bloodvessels, the ribs, the scapula, which may mean the removal of the whole arm, or portions of the sternum are in the most serious cases justifiable. Of course, no case would have all of these structures involved, and no one could be submitted to the removal of all of the structures named at one operation. With due regard to the loss of blood and by doing the radical operation in different stages, the vital forces may be well sustained and severe shock prevented.

Prognosis influences the treatment. Death results in practically 100 per cent. of cases not operated upon. It is certain that death after long suffering is the fate of these cases if left alone.

The total extirpation of the pectoral muscles is still a mooted question. Dr. J. B. Murphy thought it best to leave a small part of the minor pectoral which he sutured over the vein to prevent postoperative edema. Bryant, of London, has always felt that it was not necessary to remove the muscles. He claims not to have seen recurrence in the pectoral major, if the fascia covering it had been removed. But Franz Torek claims that time and again he has found glands involved under the minor pectoral muscle which could not have been found save by its complete removal. I am positive that I have met this condition in a number of cases. G. Labat, (*Presse Med.* 1919) states that he believes the Halsted operation mutilating and shocking. He believes it is sufficient to remove the cellular tissue lying between the axillary ganglia and the breast tumor. He advocates doing the operation under local anesthesia and thinks there is less bleeding, shock, etc. Meyer (*Annals of Surgery,* 1918) strongly urges complete removal of both pectoral muscles, both as against recurrence locally and metastasis. Erdman, discussing this paper of Meyer, said he did not remove all of the pectoralis major muscle and not the minor once in ten times, unless it was distinctly diseased.

Tansini (*Riforma Medica, Naples,* 1919,) illustrates his method of cutting a large skin flap from the back to cover the whole of the area left after removal in bloc of the breast, axilla contents and muscles. He makes a U-shaped flap the base reaching from the base of the axilla to a point on the scapula, long and broad enough to cover the raw area easily. The gap in skin on the back is closed with vertical sutures. He claims this method enlarges operability limits, making it possible to remove all of the skin covering the breast and axilla, is a better guarantee against recurrence and, too, with the use of the greater dorsalis muscle instead of leaving the pectorals as advocated by Ruth, the deformity is lessened and no drainage or fixation bandage is necessary. This use of the dorsalis, because it has a very limited lymphatic supply, may save some of the deformity, but the complete removal of the skin certainly is a very strong point in favor of the operation he suggests. We all know that the skin over a cancer of the breast, especially if there be any skin metastasis or adherence of the skin to the tumor, is one of the most unfavorable symptoms and usually means recurrence.

Saberton, (*Brit. Med Journal,* 1918,) advocates x-ray treatments as soon after operation as possible. He gives large doses over the scar area, axilla, supraclavicular triangle and postscapular regions. The first course is of three months, then a shorter course two months later and treatments at increasing intervals thereafter. He feels sure it greatly lessens danger of recurrence, lessens pain and, when used in inoperable cases, sometimes renders a case operable. Boggs, (*Amer. Jour. Roentgenology,* 1918, also strongly advocates postoperative x-ray. He applies the rays over the epigastric and liver regions in addition to those usually treated. Pfahler, (*Amer. Jour. Obs.*, vol. 124,) advises postoperative use of x-ray and in inoperable cases. He thinks the mortality may be reduced by half in the malignant cases operated on by following up with this method of treatment. I have made it a routine practice to use the x-rays postoperative in all of my cases for the past two years where at all possible.

Simmons, (*Boston Med. and Surg. Jour.*, 1918,) summarizes causes of procrastination in patients applying to surgeons for relief. One hundred and fifty-one cases reviewed gave the first symptom noted by patient as tumor. Pain, retraction of nipple, discharge, etc. were but rarely noted first. Thirty-three per cent. cases sought advice immediately after discovery of tumor; 44 per cent. had sought advice within two months, but the other 56 per cent. brought the average time up to twelve and a half months before advice was sought.

Jacobson, (*Ohio Med. Jour.*, 1918,) summarizes end results in 3462 cases. He was able to follow definitely only 1866, of whom 32.86 per cent. were well over three years and 23.77 per cent. over five years.

My particular reason for bringing this matter before you is not to offer anything new in the treatment of cancer of the breast, but to emphasize the importance of always doing the radical operation, where positive of malignancy, or a reasonable doubt may exist of the tumor being malignant. The results I have secured justly entitle me, I think, to make this claim.

I have cited very conflicting opinions of others, some of them radically conservative. My work here has amply repaid me for all the efforts made to be thoro. The percentage of cures beyond the three year limit has been so good that I fear no one will believe me when I state it. This has been better than any reports yet made to my knowlege, approximately 90 per cent; for the five year period about 80 per cent. Five of the three year period cures were recurrent cases which came to me from other surgeons who had previously operated on them. One of my own cases had two recurrences in the first six months and is still well

THE SURGICAL TREATMENT OF INTRACRANIAL PRESSURE.*

George A. Cathey, M.D.
PORTLAND, ORE.

Intracranial pressure, as determined by the ophthalmoscope and spinal mercury manometer (Fig. A.), is responsible for a multitude of symptoms which have caused the general practitioner no little concern, not only from the viewpoint of making a correct diagnosis, but also as to the selection of appropriate treatment. Just why the cerebrospinal fluid is secreted in greater quantities and seeks a new pressure level after certain cranial injuries, infectious diseases and new growths, is not definitely proven, but the fact remains that it does and it is the surgical treatment of this increase of intracranial pressure which we wish to illustrate in this paper.

Normally there are approximately 70 cc. of fluid in the cerebrospinal cavity, yet in cases of fracture of the skull 200 cc. may drain off in twenty-four hours. It is reasonable to suppose, then, that the choroid plexus can be stimulated to such an extent that it is possible for it to form a large amount of cerebrospinal fluid in a very short time. Experiments have shown that pituitary extract will increase the rapidity of formation of the fluid, while thyroid extract acts in the opposite manner; it is this excess of cerebrospinal fluid that is responsible for the increase of intracranial pressure.

I am inclined to believe that the increase of intracranial pressure following a cranial injury is in a measure due to an altered function of the pituitary gland; for the extent of the cranial injury is no criterion as to what the subsequent intracranial pressure will be or how long it will persist. Concussion seems to be more frequently followed by intracranial pressure than fracture without any marked amount of trauma. Very often at birth slight trauma, without fracture, is followed by a permanent increase of intracranial pressure with its accompanying symptoms of spacticity and feeblemindedness.

In a case of epilepsy, on whom I did a subtemporal decompression, it was very interesting to observe an extreme amount of bulging over the site of operation just prior to an attack. The attacks became less frequent and less severe after opera-

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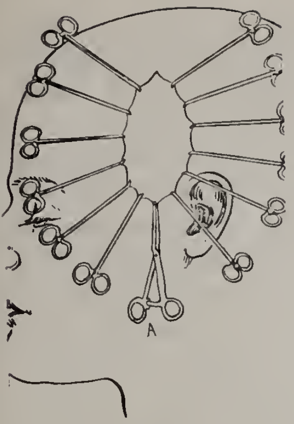
*Read before the Meeting of the Alumni Association Medical Department, University of Oregon, June 1919.



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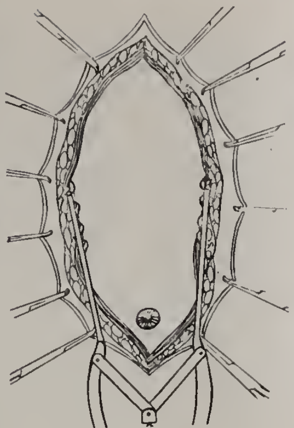

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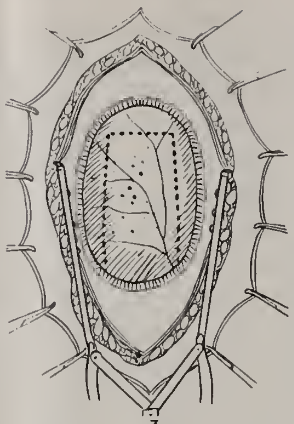

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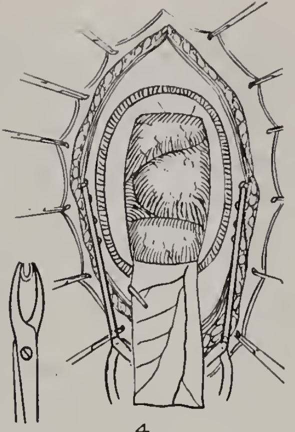

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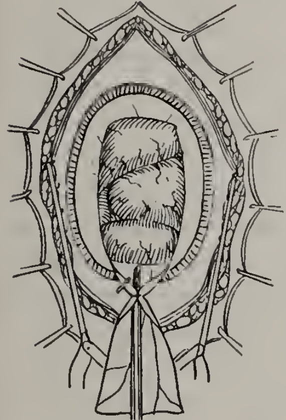

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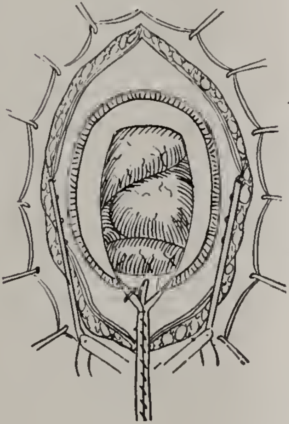

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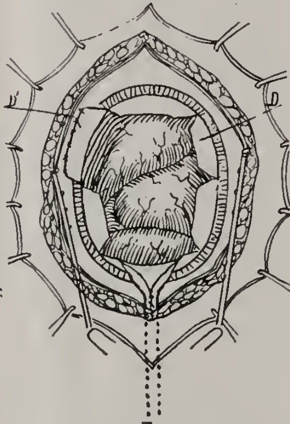

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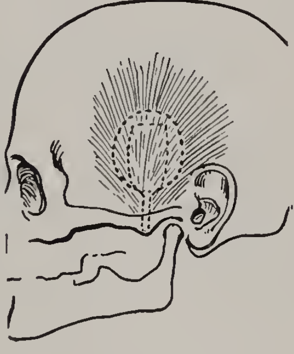

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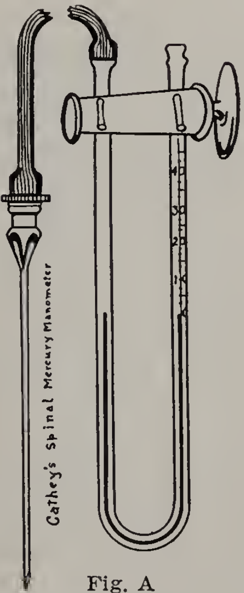

Fig. A

after three and one-half years.

tion, until they have practically disappeared six months subsequent to operation, showing that decompression and drainage is beneficial in certain forms of epilepsy, the epilepsy being due no doubt to a sudden change of intracranial pressure which caused a decided cortical irritation.

Where intracranial pressure is the result of trauma, I am led to believe that the nervous centers, which have to do with the governing of the amount of secretion of intracranial fluid, has set a new pressure standard which is above normal and which is permanent unless this standard can be reduced by continuous drainage over a period of time, as is accomplished by a subtemporal decompression operation with appropriate drainage. I am using the following technic in cases of intracranial pressure with good results and submit it for your consideration.

TECHNIC.

The night previous to operation the ordinary preparation for anesthetic is made, the head shaved and an alcohol dressing applied. When the patient is anesthetized, the temporal region is scrubbed with alcohol and a superficial incision made from the junction of the posterior and middle thirds of the zygoma to the parietal crest, to act as a land mark. The towels are now placed around this incision and held with skin clips. With manual pressure over the temporal artery and on either side of the superficial incision to control hemorrhage, the incision is carried down to the temporal fascia, after which small artery forceps are applied along the subcutaneous tissue and to the temporal artery to check all bleeding (fig. 1). The incision is now carried down thru the fascia and temporal muscle to the skull. The wound is retracted as much as possible without destroying the attachment of the temporal muscle from the parietal crest and the epicranium scraped from the underlaying bone. With a Doyen perforator and burr, the skull is opened down to the dura as low in the incision as possible, where the skull is thinnest as in fig. 2. With rongeurs as large an opening is made in the skull as possible (fig. 3).

The dura is lifted with a small hook and an incision is made thru it to allow the escape of the cerebrospinal fluid; it is then cut in such a manner as to make a flap with its base downward, containing one of the branches of the middle menegeal artery, as shown in fig. 4, small bleeding points in the dura being clamped with silver clips. The dural flap is sewn in a tubular fashion over a grooved director, as is shown in figs. 5 and 6. This newly formed dural tube is forced into the substance of the temporal muscle down beneath the zygoma to serve as a permanent drain, and the remaining dura is cut in a stellate manner, the flaps turned out over the opening in the skull (fig. 7D) and stitched to the epicranium (D′) to prevent the bone from reforming and destroying the decompression. In this manner we establish a permanent drainage and decompression which is often lost in the usual decompression operation, bone wax having been used to control oozing from the diploe.

A gutta percha drain is placed in the base of the decompression opening between the dura and the base of the brain, and the muscle closed with a continuous catgut suture. The fascia is closed with alternately interrupted catgut and silk stitches; another gutta percha tissue drain is placed between the muscle and the fascia from above to drain the upper part of the wound; the skin is united with interrupted silk and a head dressing is applied. After twenty-four hours the upper drain is removed; after forty-eight hours the lower drain and a few of the stitches are removed; on the third day practically all the stitches are removed.

We have found it necessary to use very little after treatment, except to lower the patient's head in the event that the temperature goes beyond 103.° In order that we may be able to establish a permanent drainage of the cerebrospinal fluid into the muscular tissue, where absorption is very rapid, we believe that our dural tube so placed and the remaining dura sewn over the bone will serve the purpose and prevent the bone from reforming and destroying the effect of the decompression and drainage which happens after the usual decompression, when done on young children.

February 3, 1919, I did the usual decompression, as described in text book, on a child three months old for the drainage of a cerebral cyst. Four months subsequent to operation the decompression opening had closed, destroying the effect of both drainage and decompression.

In conclusion, I am of the belief that by establishing a permanent drainage, in which the dura is used for a drain, our drainage will be permanent, and by sewing the remaining dura over the border of the bony opening to prevent the skull from reforming, our decompression will also be permanent, thus establishing a permanent decompression and drainage.

810 Morgan Building.

HOSPITAL STANDARDIZATION FROM THE STANDPOINT OF CASE RECORDS.*

EDWARD F. ZIEGELMAN, M.D.
PORTLAND, ORE.

Fifteen years ago, when a few doctors in this country started on the crusade of the standardization of medical schools, a great howl and clamor took place among a great many in the profession, but I think you will all agree with me when I say that up to date there has been no other achievement in the medical world which has been of such benefit and far reaching importance as that accomplished by that body of men who succeeded in placing our medical schools on the high pinacle which they hold today.

There are other phases in the composite picture of better medicine that naturally occupy the minds of the thinking men of our profession, and the one of paramount importance it that of the standardization of our hospitals. This was brought about in a measure thru the standardization of the medical schools and, as a natural sequence of this work, it was readily seen that the profession as a whole had a duty to the public thru the channels in which the public is treated, namely the hospitals.

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*Read before Staff of St. Vincents' Hospital, Portland, Ore., Jan. 22, 1920.

I have been requested to talk to you this evening from the standpoint of case records, and my remarks are not directed to any one particular branch of medicine, but solely to having one object in view, that is, arriving at as near a correct diagnosis as possible of the patient's condition. It makes no difference whether the case be a surgical, a medical, or a special one, they all bear the same relation to a proper, honest and complete record.

To attain this end the doctor has certain obligations to perform; the hospital has certain duties. The obligations of the doctor are to see that a proper history is taken both personal and physical, a proper course of treatment, whether it be medical or surgical, given to the patient, and he should be furnished certain privileges by the hospital, such as proper nursing, and all that it implies, as well as laboratory aids to bring about as near perfect a diagnosis as possible. In return, the hospital has a right to demand that the doctor show his results.

It is considered settled that a careful, accurate case record should be kept on all ward patients in a hospital. There seems to be no argument about this. Hundreds of hospitals keep these records well. But many physicians and surgeons hesitate about keeping detailed records on their private patients, and this feeling has been responsible for much carelessness in record keeping. Under such circumstances the administration of the hospital naturally concludes that, if the bars are down in one place, they might as well be down in other places.

Much serious thought is due this subject of records for private patients. The problem is difficult. Many doctors feel that their relation with their private patients is confidential and that these cases are not to be talked about by outsiders. The result is that some of these doctors keep accurate records in their offices and not in the hospitals, altho the patient is cared for in the hospital. Other doctors keep no records at all of their private patients. A woman, for instance, has a miscarriage or several mishaps of this sort. Obviously the case is not one for outsiders to know about. A Wassermann has been made and the result is positive, which may account for the abortion or miscarriage. There may be a g. c. history connected with the patient, or something in the history that goes back to a syphilitic taint. Very truly these are things which are not to be discussed openly. And yet should not a record be kept? Does not the patient herself frequently suffer because of the want of a proper record? Suppose the doctor treats a private case and makes no record of it, and suppose that later the patient dies, or the family moves away, or for some reason or other a new doctor is called in on the case. Is not the patient entitled to have the experience gained by the first doctor available? I think you will all agree that the patient is entitled to that.

What is required of all hospitals to meet the standardization requirements from the standpoint of case records? It is this, that the hospital keep in a systematic manner case records of its patients, together with a summary of each case, and that it utilize these records in an analysis of its medical and surgical efficiency.

What is meant by case records? These records are the scientific data which pertain to each case treated in the hospital, usually under the following headings: Identification of the patient by name or number; name of physican or surgeon responsible for the case; personal history of the patient relevant to the complaint; diagnosis on which treatment was based; laboratory findings; important points of operation or treatment; postoperative diagnosis; complications of convalescence; follow up record, and autopsy findings when available.

Case records when properly kept and analyzed provide straightforward and truthful answers to the following questions.

(1) What was the matter with the patient?

(2) What did the doctor do for the patient?

(3) What was the result?

(4) If the result was unsatisfactory, what was the reason? Was it the fault of the doctor, the patient or the hospital?

What is the purpose of keeping case records?

(1) Their value in medical sciences.

(2) The value in the practical care of patients.

(3) Medicolegal value.

(4) As an efficiency test of the physician or surgeon.

The checking up of end results, and the checking up of the diagnosis before and after operation, constitute a practical test of the efficiency of any doctor, and one which any honest, conscientious man should be willing to undergo. If the case record demonstrates that the fault is with the hospital, then the hospital should remedy the evil. The system installed at St. Vincent's Hospital may seem voluminous and superfluous but for all practical purposes it is the simplest that is available in an institution of this kind, where men of all types and training are at work.

I will attempt this evening to explain to you briefly what is desired from the standpoint of case records. (Blank records were explained in detail, including the personal history, the physical examination, the operative, the progress and treatment sheets, as well as the blanks used for the specialties and obstetrics.) It is impossible for me to advise how a physical examination or a personal history should be taken. That develops into the personal equation of each and every man doing work in this hospital, and depends upon the sincerity of purpose and former training of the individual.

You understand why we are attempting to standardize the hospitals. The Sisters are doing what they can from the standpoint of nursing and will improve other factors pertaining to their duties. It is the duty of all physicians and surgeons to attempt to aid in this movement, and one big step forward is to see that your records are complete. No one is attempting to work a hardship, or trying to eliminate anyone from working in this hospital. I speak to your medical patriotism this evening, to you as members of a great and glorious profession. If we are to overcome the tremendous wave of the various isms, pathies, sects and cults that are developing in our country, and which are having a tendency to engulf our profession, let us attempt to get the best results for our patients thru the channels of the best diagnosis possible, and thru honest surgery, the kind that we are always willing to have investigated. I know of no better way than thru a straightforward, honest, complete case record, whether it be from the standpoint of the internest, the surgeon or the specialist. The keeping of concise, honest records is only one phase in the system of standardization, but it is the most important one.

It is not a request of mine; it is not a request of the hospital; it is not a request of the board of governors; but it is the request of the entire profession, and it is the type of work upon which the hospital will be classified; it is the type of work upon which the individual doctor will be judged.

1009 Stevens Bldg.

EDDYITES WANT SICK BENEFITS

One's religious tolerance must be fixed in a peculiarly solemn setting if it resists a chuckle over the embarrassment that has befallen the Christian Scientists belonging to the teaching force of the New York City public school system. The regulations of the city board of education provide that a teacher absent from duty will not be "docked" of pay if she turns in a certificate from her physician that she was too ill to work. Now, strangely enough, the Christian Scientists on the staff want the benefit of that rule; although "Science and Health" teaches them to deny that there is any such thing as sickness in the world, yet it is far more agreeable, when pay day looms ahead, to deny the denial than to contemplate the loss of needed cash.

But the grave difficulty comes over that required certificate of a physician; the only physician known to loyal disciples of Mother Eddy is the Christian Science healer. Will, then, the board take a healer's certificate that on such and such a day an absent teacher was ill? No, says the board, it will not. If the healer is consistent, all he can certify is that the teacher had an error of mortal mind. And the board of education of the august City of New York says that if it knows itself—and it thinks it does—there is no good New York money going to be paid out to encourage errors of mortal mind. Let the Christian Scientist engage "absent treatment" and stay in her schoolroom. The strange doctrine of Mrs. Eddy has led her followers into a good many ridiculous and abashing situations but none more ludicrous, we judge, than this spectacle of so intelligent a company of the faithful industriously whipping the devil round the proverbial stump in order to obtain sick benefits for maladies and infirmities which they constantly declare not to exist. —(From "The Continent," Chicago, editorial.)

Enlarged Surgical Instrument Manufacture. The Frank S. Betz Company, of Hammond Ind., has recently purchased the stock and business of the Crown Surgical Instrument Co. at 8th Avenue and 49th Street New York City, and have opened a salesroom at 6 West 48th Street. While Betz Company has heretofore operated only on a mail order basis, the demands of the medical and dental profession are such that it is necessary to establish this new store.

NORTHWEST MEDICINE
The Journal of the State Medical Associations of Oregon, Washington, Idaho and Utah.
Devoted to the Interests of the Medical Profession of the Pacific Northwest
Editorial Office, 1011-12 Cobb Building, Seattle, Wash.
MAY, 1920.

EDITORIAL

STANDARDIZATION OF HOSPITALS VERSUS STATE MEDICINE

The movement on foot to "standardize" the state and nation is based on a broader principle than the term would suggest. It includes the standardization of the entire profession—doctor, nurse and hospital. The basic principle involved in this movement is the preservation of medicine as an independent, unshackled profession. The legal profession of today is subsidized either by the state, corporation or labor. The law as interpreted by the judges must reflect popular opinion to a greater or less degree. The educational profession of today is on a salary dependent upon appointees, usually political, who regulate the salary of our educators by the amount of taxes obtainable from a greatly overtaxed public. The ministerial profession exists on totally inadequate remuneration from those interested in religious work, as compensation for labors which require exceptional qualifications as to character and training.

The medical profession alone has stood the test of the centuries, unshackled and independent of all outside influences. Commercialism on the one hand and socialism on the other threaten this independence. There is but one way to defend our profession. Unite as a body, improve our standards in every way possible, and teach each other. Be students and teachers one of another, banish commercialism from our ranks and refuse to compromise with any outside organization. Upon this principle modern medicine must stand. With such cooperation of all factors involved, we need never bow our heads to the political boss, or walking delegate of either capital or labor.

ANNUAL MEETING OF THE OREGON ASSOCIATION

The forty-sixth annual meeting of Oregon State Medical Association will be held at Portland, June 3-5. The scientific sessions will be held in the Masonic Temple at Park and Yamhill streets. The building is in the center of the city but away from all street car lines and traffic noises. On Thursday evening, June 3, the annual banquet will be held in the Chamber of Commerce. There will be no long tiresome toasts, but some entertainments worth while will be presented. On Friday evening, at the armory, the athletic carnival and smoker will be pulled off. Pacifists, timid mothers and all those opposed to military education are cordially invited to be present. Physicians from neighboring states are invited to attend this annual meeting.

PROGRAM

THURSDAY, JUNE 3

8:30 A. M.	Business Session.
9:30 A. M.	Invocation.
	Address of Welcome, Mayor George L. Baker.
	Address by the President, Burpee L. Steeves.
	Address by the President-elect Joseph A. Pettit.
	"The Diagnostic Value of the Estimation of the Basal Metabolic Rate in Toxic Goiter" J. Earl Else, Portland
	Discussion opened by T. M. Joyce, Portland.
	"The Comparative Value of Some of the Functional Tests on the Thyroid Gland," C. E. Sears, Portland.
	Discussion opened by A. C. Smith, Portland.
1:30 P. M.	"Asthma and Hay Fever," Marr Bisaillon, Portland.
	Discussion opened by R. L. Benson, Portland.
	"Early Findings in Three Hundred Cases of Tuberculosis," A. H. Ross, Eugene.
	Discussion opened by R. H. Wellington, Portland.
	"New Prodecure for Prevention of Spinal Puncture Headaches," Gustav Barr, Portland.
	Discussion opened by H. B. Myers, Portland.
	"Kinoplastic Amputations," E. W. Rockey, Portland.
	Discussion opened by R. D. Dillehunt, Portland.

FRIDAY, JUNE 4

9:00 A. M.	"Recent Advances in the Diagnosis of Heart Disease," A. W. Hewlett, Professor of Clinical Medicine, Stanford Medical School.
	Discussion opened by W. S. Knox, Portland.
11:00 A.M.	Open House at the Medical Department of the University of Oregon.

1:30 P. M. "A Roentgenological Study of Pain in the Lower Abdomen," James T. Case, Battle Creek, Mich.
Discussion opened by S. E. Diemer, Portland.
"Intestinal Stasis," Geo. F. Koehler, Portland.
Discussion opened by N. W. Jones, Portland.
"A Report of Three Cases of Pericarditis in Which the Early Symptoms Were Entirely Referred to the Abdominal Cavity," W. B. Holden, Portland.
Discussion opened by R. C. Coffey, Portland.
"Transfusion of Blood," Norman Pease and I. C. Brill, Portland.
Discussion opened by E. A. Sommers, Portland.

SATURDAY, JUNE 5

9:30 A. M. "A Modification of the Glucose Tolerance Test," A. W. Hewlett, Stanford University.
Discussion opened by L. Selling, Portland.
"Prevention of Tuberculosis," Sadie Orr Dunbar, Portland.
Discussion opened by D. N. Roberg, Portland.
"Ten Years Progress in Childrens' Diets," C. U. Moore, Portland.
Discussion opened by Jas. Rosenfield, Portland.

UNIVERSITY OF OREGON ALUMNI ASSOCIATION

The eighth annual meeting of this association will be held at Portland, May 31-June 2. The interest manifested in the meeting is greater this year than ever before which forecasts an increased attendance over previous years. This meeting, preceding that of the Oregon State Medical Association, in connection with the postgraduate course offered by the Medical School, offers unsurpassed attraction to the profession of the Pacific Northwest.

.PROGRAM

Clinics

Monday, May 31, 8:30 A. M. to 12:30 P. M.
St. Vincent's Hospital.
Dr. James F. Bell, Medical.
Dr. I. C. Brill, Medical.
Dr. Geo. N. Pease, Surgical.
Dr. Ernest A. Sommer, Surgical.
Dr. E. F. Ziegelman, Surgical.

Papers

1:30 to 5:00 P. M. Imperial Hotel.

Dr. A. B. Bailey, Acute Mastoiditis. Discussion. Dr. J. W. McCollom.

Dr. G. N. Pease. Surgery of the Gall-Bladder. Discussion, Dr. Paul Rockey.

Dr. Emma M. Wickstrom, The Constitutional Effects of Gonorrhea. Discussion, Dr. T. W. Ross.

Dr. L. H. Maxson, The Problem of Good Anesthesia. Discussion, Dr. A. J. Browning.

Dr. J. A. Gilbert, The Psychology of the Ouija Board. Discussion, Dr. W. T. Williamson.

Imperial Hotel, 8:00 p. m.

Dr. E. F. Tucker, Reminiscences.

Dr. Lawrence Selling, Botulism, Discussion, Dr. Harry Sears.

Dr. M. W. McKinney, Diagnosis of the Pathologic Tonsil. Lantern Slides. Discussion, Dr. H. F. Leonard.

Dr. William House, The Prognosis of Syphilis of the Nervous System Under Modern Treatment. Discussion, Dr. G. S. Whiteside.

Clinics

Tuesday. June 1, 8:30 A. M. to 12:30 P. M.
Good Samaritan Hospital.
Dr. Otis F. Akin, Orthopedic Surgery.
Dr. Geo. A. Cathey, Head Surgery.
Dr. A. E. Mackay, Genito-Urinary Surgery.
Drs. Louis Maxson and M. W. McKinney, Gas Anesthesia and Tonsillectomy.
Drs. A. E. Paul and E. W. Rockey, Surgical.
Dr. J. O. C. Wiley, Watkins-Wertheim Operation.

Papers

1:30 to 5:00 P. M., Imperial Hotel.

Dr. Marr Bisaillon, Anaphylaxis in Asthma and Hay Fever. Discussion, Dr. R. L. Benson.

Dr. B. N. Wade, The Pathology of Hypernephromata. Discussion, Dr. A. E. Mackay.

Dr. R. B. Dillehunt, The Medical School. Discussion, Dr. A. E. Rockey.

Dr. A. E. Rockey, Dependent Drainage in Suppurative Appendicitis. Discussion, Dr. A. W. Baird.

Dr. Gustav Baar, An Effective Procedure for Preventing Spinal Puncture Headache. Discussion, Dr. Lawrence Selling.

6:30 P. M., Imperial Hotel. Banquet and Business Meeting. Election of officers. Business dress. $1.50 per plate. Ladies invited.

Clinics

Wednesday, June 2., 8:30 A. M. to 12:30 P. M.
.Multnomah Hospital.
Dr. Samuel M. Geilert, Cystoscopy.
Dr. H. W. Howard, Genitourinary.
Dr. Marius B. Marcellus, Medical.
Dr. J. M. Short, Medical.
Dr. Joseph D. Sternberg. Surgical.
Dr. Geo. S. Whiteside, Genitourinary.
Emanuel Hospital.
Dr. J. Earl Else, Surgical.

Papers

Imperial Hotel, 1:30 to 5:00 p. m.

Dr. B. L. Steeves, The Building of a Successful Medical Practice. Discussion, Dr. L. O. Roberts.

Dr. E. E. Fisher, The Heart in Surgery. Discussion, Dr. A. J. Giesy.

Dr. R. C. Coffey, Acute Abdomen. Discussion, E. F. Ziegelman.

Dr. J. E. Else, The Value of the Basal Metabolic Rate in Therapy. Discussion, Dr. B. N. Wade.

Dr. H. B. Myers, Recent Acquisitions to out Knowledge of Drug Action. Discussion, Dr. Horace Fenton.

Imperial Hotel, 8:00 p. m.

Meeting in conjunction with the Portland City and County Medical Society.

Dr. B. E. Smith, The Coroner's Office and the Public. Discussion. Dr. D. N. Roberg.

Dr. Frederick Diemer, Diagnosis from the Standpoint of the Radiograph. Discussion, Dr. J. P. Tamiesie.

Dr. I. C. Brill, Juvenile Diabetes. Discussion, Dr. C. U. Moore.

Dr. J. S. Saurman, The Scientific Treatment of Diabetes. Discussion, Dr. Leo Ricen.

MEETING OF CANADIAN MEDICAL ASSOCIATION

The fifty-first annual meeting of the Canadian Medical Association will be held in Vancouver, B. C., June 22-25. At the same time conventions will be held of the Public Health Association, the Canadian Association for the Prevention of Tuberculosis, the Canadian Committee of Mental Hygiene, the National Committee for Combating Venereal Diseases and the British Columbia Hospital Association. Interesting papers will be presented by prominent members of the profession from Canada, Great Britian and the United States, some of the latter appearing from the Pacific Northwest. A cordial invitation is extended to the members of the profession reached by this journal to attend this meeting. It will be some years before all of the above mentioned organizations again meet in conjunction so near this section of the country.

Those who have attended medical gatherings in British Columbia cities in former years have a vivid recollection of the cordiality extended to them by the Canadian profession. A meeting of this kind will furnish a splendid opportunity to form an acquaintance with a fine body of medical men. Any one who can arrange his summer vacation to attend this gathering will be repaid for the effort. It is requested that those who expect to attend this Canadian meeting make hotel reservations at the earliest possible date. This can be done by communicating at once with the Secretary of the Accomodation Committee, Dr. C. McDiarmid, Birk's Building, Vancouver, B. C.

NEW ADVERTISEMENTS

We wish to call the attention of our readers to our advertisers appearing for the first time in this issue and those of the last month or two. As advertisements which appear in this journal are of an ethical character and thoroly approved, we have no hesitation in recommending them for consideration. The Intravenous Products Company, of Denver, prepares ampoules for intravenous use which are described from month to month. The General Chemical Company, of New York, manufacturers Sofos, accepted by the Council on Chemistry and Pharmacy, whose uses are described in the advertisement. The Riggs Optical Company, of Portland, is known by its products in the leading cities of the west. It has branch houses in all the large cities reached by this journal.

The Pacific Laboratories, Wassermann of Seattle , appears in a new full page advertisement. The Oregon University Medical School offers a course of graduate instruction in medicine June 7-19, details of the course being given in the advertisement. Jefferson Medical College, of Philadelphia, offers information as to its course of instruction to be found in the advertising pages.

PACIFIC COAST OTO-OPHTHALMOLOGICAL SOCIETY

The annual meeting of the Pacific Coast Oto-Ophthalmological Society will be held in Portland July 29, 30, 31. Dr. John Gordon Wilson, Professor of Otology, Northwestern University, Chicago, will be the guest of honor. A good program is assured, and the members of this society and those interested in otology and ophthalmology would do well to plan their vacations now so as to include this meeting.

MEDICAL NOTES

Medical Service Department. The Cooperative Medical Advertising Bureau, of 535 N. Dearborn Street, Chicago, maintains a Service Department to answer inquiries from physicians about pharmaceutical and surgical instruments, and other manufactured products such as objects of art, clothing or automobiles which may be needed in the home, office, sanitorium or hospital. Our readers are invited to make use of this service which is absolutely free. The Cooperative Bureau is equipped with catalogues and price lists of manufactures and can supply any needed information by return mail.

OREGON.

Visit of Dr. Martin. Dr. Franklin H. Martin, of Chicago, Secretary General of the American College of Surgeons, visited the Pacific northwest last month. The purpose of the visit was to promote the interest of the organization which stands for better and honest surgery. Local sections of the clinical congress of the American College of Surgeons were established and officers selected for the coming year. Delegates were appointed to represent the states at the annual clinic and meeting of the college.

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Endowed Lectures. Two lectures will be given in Portland, by Dr. Ludwig Hektoen, Professor of Pathology, Rush Medical College, May thirty-first and June first, 1920, furnished by an endowment given the Medical School.

New Dean of Medical School. Dr. Richard B. Dillhunt, of Portland, has been elected dean of the Medical Department of the University, to succeed the late Dr. K. A. J. Mackenzie. For several years he has been assistant dean, and is therefore especially qualified to carry on the work of the institution. It is proposed to enlarge the scope of the medical school with increased facilities for teaching and research work and the construction of special hospitals.

Nurses buy Hospital. Misses M. L. Scott and Gertrude Thomas, of Oregon City, have purchased the controlling interest in the Oregon City Hospital. The institution was established about ten years ago and will be conducted along established lines.

New Hospital Proposed. At Burns it is proposed to establish the St. Joseph's Hospital. The Chamber of Commerce of Burns has promoted the project and already donations have been made for beginning the necessary funds.

Hospital Donation. The Good Samaritan Hospital fund has received a special donation of $45,000 which is to be utilized for the construction of a surgery in a new wing which will soon be completed. The gift has been made in appreciation of the good which has been rendered to humanity by this hospital.

The Washington County Medical Society held a meeting at Forest Grove, on January 19, when the society was reorganized and the following officers were elected for the new year: President, Dr. Quentin Tucker, Forest Grove; Vice-President, Dr. J. O. Robb, Hillsboro; Sec-Treasurer, Dr. D. E. Wiley, Hillsboro.

Disabled by Small Pox. The town of Brownsville has been hard hit by small pox and the residents hope it will not extend further. The two victims are the doctor and the undertaker.

WASHINGTON.

Fewer Schools Urged. Dr. Geo. H. Sparling, county physician of King county, has stirred up considerable agitation in recommending the closing of certain county schools. There are one hundred eighty-seven schools in the county, and the doctor says the children can be better accommodated in fewer schools and at less expense and to their advantage. He has been forced to condemn some of them and order them closed because of unsanitary conditions.

Hospital Doubled in Capacity. The sanatorium at College Place, Walla Walla, has doubled its capacity with the completion of the annex which adds twenty-three rooms for patients.

Rebuilding of Hospital. It has been reported that a group of physicians had secured an option on the Minor Hospital property in Seattle. It is stated that the building is to be remodeled and improved into a thoroly modern hospital structure at a cost of upwards of $100,000.

Clinic on Cleft Palate Surgery. Dr. G. V. I. Brown, of Milwaukee, authority on cleft palate surgery, will hold a clinic at the Tacoma Clinic, June 2-11. Physicians wishing to take advantage of Dr. Brown's visit can communicate with Dr. E. A. Rich.

Clinics at City Hospital. Clinics are held daily at 10:30 a. m. at Seattle City Hospital by members of the staff as follows: Monday, gynecology and obstetrics; Wednesday, surgery; Thursday, orthopedics; Friday, head surgery; Saturday, medicine. Local and visiting physicians are invited to attend.

Establishment of Tuberculosis Clinics. Under the auspices of the Washington Tuberculosis Association clinics have been established during the past month in a number of cities, under the direction of Dr. R. J. Carey. These have been largely attended and have met with much popular favor.

Addition to Hospital. It is proposed to build a convalescent home in connection with the naval hospital at Bremerton in conjunction with the American Red Cross Society. The building will be eighty by sixty feet, to be constructed of wood similar to other Red Cross buildings erected during the war. The building will contain a large reading room together with a solarium, the two being so constructed as to be used for evening entertainments. By the addition of a gallery a seating capacity will be provided for four hundred people and will be used to furnish recreation for convalescent patients.

New Hospital. The new St. Joseph's Hospital at Aberdeen is completed, about doubling the capacity of the former institution. It is a fire-proof structure that contains all the modern equipment of an up to date hospital.

Hospital Rented. The Mt. Vernon General Hospital, which was built and conducted by Dr. Thornton D'Arc, has been rented to Misses Hilda Anderson and Catherine McMillan, graduate nurses of long experience.

Fumigation Charged to the Patients. Health officer H. H. Smith, of Yakima, recently stated that he would not fumigate homes in which there had been smallpox without charge. He says this is an entirely preventable disease and there is no reason why the county should be taxed to provide fumigation for negligent persons.

In Charge of Educational Work. Mrs. Robert C. McCredie, of Sunnyside, President of the State Board of Health, will take charge of the educational work of the social hygiene department started by the government last year.

Newly Appointed Health Officer. Dr. S. G. Brooks, of Anacortes, has been appointed city health officer. Dr. Frost who held the office for some time has been absent from the city for several months and the chief of police has acted as health officer. The state health officials would not stand for this and demanded that a doctor be appointed to the office.

Smallpox Among the Indians. Smallpox is widely prevalent on the Yakima Indian reservation, about every other home being decorated with a red sign. The deputy county health officer recently appeared at a wedding which was being conducted in a house placarded for smallpox and, when he protested to the bridegroom, the latter pointed to the smallpox sign and replied, "if they want 'em, they can have 'em." Next the doctor was ordered to decamp from the reservation. He found that he was without authority on the reservation property.

Resigns From Office. Dr. Paul Turner, of Seattle, has resigned from the position of medical director of the city hospital to devote his time to private practice. He has held this position for ten years with the exception of two years spent in army overseas service. The position will be filled by Frank A. Plum, a native of Seattle, who served during the war with base hospital No. 90, stationed at Gen. Pershing's headquarters.

Hollywood Prepares Cultured Milk. Dr. Rose A. Bebb, of Seattle, recently connected with the U. S. Public Health Service, has relocated in the city. She has perfected and is supervising the manufacture of cultured whole milk for the Hollywood Farm.

Dr. J. S. Judah, of Leavenworth, has disposed of his practice and the Leavenworth hospital to Dr. W. M. Cox who has recently practiced at Ritzville. Dr. Judah plans to locate in Seattle.

Dr. M. C. Lile has recently located in Seattle, coming there from New York. He was recently discharged from army service having served in France with the University of Baltimore unit.

Dr. A. A. Nichols, recently from Sylvia, N. C., has located for practice at Kennewick.

Dr. H. H. Searles, who has been stationed for some time at the naval hospital at Bremerton, has been ordered for duty at San Francisco.

Dr. G. W. Weddell, who has practiced in Hamilton for two years, has disposed of his practice to Dr. R. G. Kellner and plans to locate for practice in Seattle. Dr. Kellner practiced in Hamilton previous to the arrival of Dr. Weddell.

Dr. C. E. Montgomery, of Walla Walla, has returned home after nearly two years spent in various forms of army service. He served as Lieutenant at Camp Lewis and later was assigned to Red Cross service in Siberia.

Dr. Charles Shannon, of Seattle, has returned home for practice, having been recently discharged from the medical department of the U. S. Navy.

Dr. L. T. Dalton, who has practiced for some time at Sumas, has moved to Seattle where he will be located for the future.

Dr. Paul West of Riverside, has located for practice at Okanogan.

OBITUARIES.

Dr. Geo. E. Ensing, formerly of Seattle, Wash., died from suicidal drowning in the river Thames at London, March 23. He practiced on Vashon Island for several years before he entered the British army in 1916. He was gassed in Flanders in 1917 and visited at home the following year. He soon reentered the British service and was ordered to South Africa on the steamer Galway Castle which was torpedoed off the English coast in September, 1918.

Dr. E. E. Beckett of Seattle, Wash., died April 9 from cerebral hemorrhage, due to the growth of a sarcoma. He was 48 years of age, a graduate of Herring Medical School of Nebraska. He came to Seattle twenty-five years ago from Kearney, Neb. He practiced in this city continuously with the exception of three years spent in Alaska during the Klondike excitment. He was an ardent sportsman, active in athletics. During the war he served as Captain in the medical corps, stationed at Camp Crane, Pa. He was a man of high principles with many firm friends both in the profession and among the laity.

Dr. John A. Allen, of Medical Lake, Wash., died March 7 from pneumonia. Besides having an extensive practice he was actively interested in the affairs of his community and was widely known in that part of the state.

REPORTS OF SOCIETY MEETINGS

KING COUNTY MEDICAL SOCIETY.

Pres. H. D. Dudley, M.D.; Secty, H. J. Knutt, M.D.

The regular meeting of the King County Medical Society was held in the Masonic Club rooms, Seattle, Wash., April 5, 1920. The meeting was called to order by the president. The minutes of the previous meeting were read and approved. The evening was given over to a Symposium on Goiter.

Dr. F. Horsfall presented a surgical case history of thyroidectomy with fatal termination due to an air embolism.

Dr. D. C. Hall gave a paper on Distribution, Etiology, Economic Phases and Pathology of Goiter. The paper was discussed by Dr. R. E. Moseman.

Dr. J. M. Blackford gave a paper on differential Diagnosis and Medical Treatment of Goiter. Dr. P. V. Von Phul discussed the paper.

Dr. John Hunt gave a paper on Surgery of Goiter The paper was discussed by Dr. O. F. Lamson.

There was a general discussion of papers by Drs. Willis, Thompson and Mason.

Dr. Franklin H. Martin, of Chicago, gave a short talk on Medical and Surgical Conditions as he found them in South America.

Dr. Blackford and Hunt closed the discussion of the evening.

Dr. Bebb gave a few remarks on fermented milk. The meeting adjourned at 10:30 P. M. to the rear of the hall, where lunch was served by the Hollywood Corporation, demonstraing in a practical way the quality of their fermented milk products

The second regular meeting of the society was held April 19, being called to order by the President, Dr. Dudley, at 8:20. The minutes of the previous meeting were approved as read.

Papers.

The Correlation of X-ray Diagnosis and Surgical Findings. By J. W. Thompson, of Vancouver, B. C. Dr. H. B. Thompson discussed the paper and brought out the point that bismuth enema should always be used in lower bowel work. Mistakes of diagnosis are made on account of one poor plate which often leads to error; too few plates are often taken to make a definite diagnosis; the fact that preconceived ideas influence diagnosis. Dr. Snively spoke of the necessity of working up the case before x-ray is taken.

The acute Abdomen, Including Postoperative Conditions. By Dr. Robert C. Coffey, of Portland. More people die of mistreated acute abdominal conditions than from cancer. From colic and fits we have developed down to present diagnoses such as appendicitis, gall-bladder conditions, perforated gastric ulcer, pancreatitis and, finally, to what Deaver calls the "acute abdomen." Diagnosis should play the chief role. In intestinal obstruction the pain is slow in onset. In appendicitis pain is acute. In acute gangrenous perforating appendicitis enormous numbers of casts are thrown down in the urine. In acute abdominal conditions don't call the internist. He is the most dangerous man to call outside the Christian Scientist, because his deductive reasoning takes time and by the time laboratory work is done the patient is dead. Don't give a carthartic in acute abdominal conditions. Only give morphine if you are sure you cannot operate.

Dr. J. B. Eagleson in discussion summed up his remarks by saying, "Make your diagnosis early and operate at once."

Dr. Monroe, of Vancouver, B. C., invited the members of the society to the Canadian Medical Meeting at Vancouver.

Dr. Murray, of Butte, Mont., expressed his appreciation of Dr. Coffey's paper.

In further discussion, Dr. E. O. Jones, emphasized the principle of the quarantine pack. Drs. Blackford, H. J. Davidson, Gerhart and Sharples continued the discussion.

The names of Drs. D. H. Polk, J. C. Clarke, F. J. Clancy and E. L. Smythe were read for membership.

Resolutions of Dr. Beckett's death were moved and adopted.

PUGET SOUND ACADEMY OF OPHTHALMOLOGY, AND OTOLARYNGOLOGY

Pres., W. G. Cameron, M.D.; Sec., A. F. Mattice, M.D.

A meeting of the Academy was held at the office of Dr. W. K. Seelye, Seattle, Wash., March 29, 1920, with Vice-President Ernest Wheeler, of Tacoma, in the chair. Seventeen members and four visitors were present. Minutes of the previous meeting were read and approved.

Drs. J. S. Davies and A. E. Lillis were elected to membership. Applications were presented from J. H. Harter and J. M. Adams.

The auditing committee, by Dr. Hoffman, reported the books in order.

Clinical Cases

Dr. E. F. Chase presented the case of a woman of 58 years with epiphora of the right eye for years. No results following irrigation of the duct, the sac was opened intranasally with a Tilly bur. Later the operation was repeated. Case 2 had a similar history and the same treatment. Case 3 was a nurse of 50 years who had a tonsil operation under eral anesthesia, resulting in the closure of the nasopharynx with deformity. A month later adhesions were broken down with return of previous conditions. Six months later the doctor operated by the suture method. Results not yet determined.

Dr. M. Stillson presented a man of 35 years with an irregular tear of the right cornea. Protruding iris and lens capsule excised. A secondary cataract developed. Advice asked for further treatment. It was thought that nothing more could be done. Second case a woman of 50 years. No vision in right eye. Chronic iridocyclitis of left. Relying on her sense of touch she can thread a needle and do fairly fine work.

Dr. G. W. Swift presented a girl of 11 years, in whom the iris in both eyes had no color in the stroma, iris tremulous, fundus negative. Right eye 6/13; left 6/8.

Paper

Diseases of Ethmoidal and Sphenodial Sinuses. By Dr. J. H. Harter of Seattle.

He described surgical and applied anatomy, gave classification of disease, diagnosis, treatment and operative care, results. Acute inflammation receives palliative treatment; for chronic use spray, douche, vaccine, etc. If no improvement, radical operation is indicated. Chronic suppurative inflammation demands a radical operation. Reports of ten operated cases were made.

In discussion, Dr. E. F. Chase commended Dr. Harter on the way he had handled a difficult prob-

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lem. Dr. A. T. Wanamaker emphasized the difficulty of diagnosing many important symptoms. He suggested encephalitis lethargica might be the result of sphenoidal or ethmoidal involvement. He commented further on treatment.

Dr. G. W. Swift agreed that encephalitis lethargica may be an intracranial complication of influenza, resulting from sinus infection. While at Fort Riley postmortems on influenza and pneumonia showed many cases of sinus involvement, of which the sphenoid was the most common.

Dr. R. W. Perry showed instruments useful for biting off the anterior wall of the sphenoid. The paper was also discussed by Drs. N. P. Wood and L. Klemptner.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

General Surgery. The Practical Medicine Series, Edited by Albert J. Ochsner, M. D., F. R. M. S., L. L. D., F. A. S. C., Major M. R. C., U. S. Army. Cloth 625 pages, illustrated, $2.50. The Year Book Publishers, 304 S. Dearborn St., Chicago, Ill., 1919.

This volume on general surgery follows a year of war and contains a wealth of material produced by surgeons who have worked with the Allied armies. Much reconstructive surgery as well is reviewed in the book, adding greatly to its value. Following its predecessor, the work deals with the important advances in every branch of surgery. Most of the chapters treat the subject regionally, a few of the others being those on anesthetics, analgesics, x-ray, radium therapy, asepsis and antisepsis, infected wounds and their treatment, operative technic and malignant tumors. Anyone who reviews the book is impressed equally by the quality of the material as well as the illustrations and diagrams. FORBES.

Diseases of Nutrition and Infant Feeding. By John Lovell Morse, A. M., M.D., Professor of Pediatrics, Harvard Medical School, etc. and Fritz B. Talbot, A. B., M.D., Instructor in Pediatrics, Harvard Medical School, etc. Second Edition Revised. 384 pp. The Macmillan Co., New York, 1920.

In the second edition newer references have been added to bring the literature up to the time of April, 1918. Since that time, and on account of the war, there have been relatively few additions to pediatric literature. This work continues to be the best book published in the English language, and so far as the reviewer knows in any language, in which an attempt is made to combine the original data underlying scientific infant feeding with a practical, clinical, and working basis. It is an indispensible book for anyone interested in the managment of infant feeding. MANNING.

The Medical Clinics of North America. Mayo Clinic Number. Vol III, No. 3. Nov., 1919. Paper, Bimonthly. $10.00 per year. W. B. Saunders Co., Philadelphia and London.

This is an extraordinarily good number, containing twenty-two separate contributions by members of the Mayo Clinic. To enumerate some of them: Kendall has a most valuable paper on the active constituents of the thyroid, he being the discoverer of the essential principle of the gland, thyroxin. The value of the basal metabolic rate in treatment of diseases of the thyroid is another notable article, in which—after two years experience with the test—Boothby states that, "We consider the basal metabolic rate differentiates thyroid intoxication from neurosis stimulating hyperthyroidism just as definitely as does the thermometer determine the presence or absence of a febrile condition."

Mediastinal affections of childhood, and differential diagnosis of mediastinal affections are classical in their completeness and wealth of illustration, by Lemon. A report of fifteen cases of erythremia (polycythemia) by Marsh, is as interesting as such a collection is unusual. The sympomatology is quite characteristic. Papers on transfusion and the life of transfused blood corpuscles in the recipients are both of great worth. The general excellence and worth of all the monographs is so high that it would be wasted effort to discriminate between them.

The Medical Clinics of North America. Boston Number. Vol. III. No. 4, January, 1920.

This number covers a great range of cases demonstrated by seventeen different clinicians. Christian begins with a clinical lecture on several unusual cases. Joslin talks authoritatively on severe diabetes versus acidosis, and diabetes of long duration. Rosenau details interesting experiments in feeding canned food; some 1750 cans of various commercial varities, containing live bacteria in 12 per cent. of the cans, but without producing any deleterious results on the volunteers. He regards canned foods as the safest of all food.

Paul White gives a most illuminating lecture on the use of electrocardiography in hearts which are regular. In these we do not expect the pathologic disturbances in the pace-making and conducting apparatus of the sinus node, junctional tissue and the branches of the bundle of His, but such is the case when partial heart block may cause an auricular pulse quite different in rate from a regular ventricular one. These cases are not uncommon and may quite escape the clinician and the cause is beyond his ken without the aid of the cardiogram. Means shows the value of the rate of basal metabolism in suspected hyperthyroidism and esteems it of unquestioned and unrivalled worth. A progressive number from a conservative community. WINSLOW

NORTHWEST MEDICINE

The Journal of the State Medical Associations of Oregon, Washington, Idaho and Utah
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Subscription Price $2.00. In clubs of twenty or more, $1.00.

Vol. XIX. June, 1920. No. 6

ORIGINAL CONTRIBUTIONS

MEDICAL PRACTICE LAW OF IDAHO*

PAUL DAVIS.
Director Bureau of License.
BOISE, IDA.

As Idaho has had a change in the administration of its professional laws, some misunderstanding has arisen. Because of this I have been asked to explain the Medical Practice Act of Idaho, and how it operates under the new system; this being under the supervision of the Bureau of License of which I happen to be Director. In its administration the Idaho law adopts the idea used in Illinois.

It has been held by numerous courts that a license to practice medicine or any other profession, trade or occupation when granted, constitutes a vested right, the object of licensing any profession being to safeguard the public and the profession involved. In other words, it is nothing more or less than a privilege or right after complying with certain stated conditions.

It has been held constitutional by the United States Supreme Court and by every State Court that the legislature has the power to confer on a body or board the powers to regulate its professions. The legislature having the power, it can say what qualifications are necessary and determine the method of ascertaining these qualifications. Therefore, the only method being open is under the jurisdiction of the state by men from the profession. In other words, a board may be likened to "A jury of his peers." These conditions are constitutional, provided they apply to all alike, to everyone regardless of sex, age and condition.

After granting a license, "The Board must supervise the conduct of all practitioners and may suspend or revoke a practitioner's license for cause." It has been held constitutional, "Entirely competent for a legislature to confer on a board the power to revoke licenses in its discretion." That is, a person once qualified to practice medicine does not necessarily remain so, and hence may be subjected to a "continuing legislation." A parallel to the regulation of medicine can be found in our various State Boards of Equalization, a body having the right to determine the value of property. Here is taking property without judicial process. Yet this power has been upheld in our supreme courts. While neither the Board of Equalization nor the Board of Medical Examiners are administrative or judicial, they adhere to both and are termed quasi-judicial, having great discretionary powers. This brief introduction will give sufficient grounds for you to clearly understand some of the legal phrases that might be used later.

The Medical Practice Act was changed by what is commonly known as Senate Bill 19, or Chapter 8, of Session Laws of 1919. Only two sections of the old law have been repealed. They are Section 1341 and Section 1343. 1341 merely created the board, designated what should constitute the medical board, and the appointing of its members. 1343 dealt entirely with the board and prescribed its duties. Otherwise it is the very same law, under which every one here obtained his license. If I remember, it is the Act of 1899, with some slight amendments.

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*Read before the Twenty-seventh Annual Meeting of Idaho State Medical Association, Boise, Ida., Oct. 1-2, 1919.

The particular section affecting the medical profession will be found in Sections 31 and 32 respectively of Chapter 8. Section 31 states that, "The Department of Law Enforcement shall have power," and in subdivision 3 says, "To exercise the rights, powers, duties vested by law in the State Board of Medical Examiners, its President, Secretary and Treasurer." Section 32 states, "The Department of Law Enforcement shall, wherever the several laws regulating professions, trades and occupations which are devolved upon the Department for administration so require, exercise, in its name, but subject to the provisions of this Act, the following powers:"

Subdivision 1.

"To conduct examinations to ascertain the qualifications and fitness of applicants to exercise the profession, trade or occupation for which an examination is held; to pass upon the qualifications of applicants for reciprocal licenses, certificates and authorities."

You will note that the Board assumes its duties under this provision that were repealed in the old law or Section 1343.

Subdivision 2.

"To prescribe rules and regulations for a fair and wholly impartial method of examination of candidates to exercise the respective professions, trades or occupations."

Subdivision 3.

"To prescribe rules and regulations defining, for the respective professions, trades and occupations, what shall constitute a school, college or university, or department of a university, or other institution, reputable and in good standing and to determine the reputability and good standing of a school, college or university, or department of a university, or other institution, by reference to a compliance with such rules and regulations."

You will note in this clause that great discretionary power is conferred. Acting on this Idaho will allow no one to take the examination who is not a graduate of a Class A or B school.

Subdivision 4.

"To establish a standard of preliminary education deemed requisite to admission to a school, college, or university, and to require satisfactory proof of the enforcement of such standard by schools, colleges and universities."

Of course we need not go into this particular division, due to the fact we recognize only Class A and B schools, these schools requiring certain preliminary qualifications before a man can enter the college or university.

Subdivision 5.

"To conduct hearings on proceedings to revoke or refuse renewal of licenses, certificates or authorities of persons exercising the respective professions, trades or occupations, and to revoke or refuse to renew such licenses, certificates or authorities."

I consider this subdivision the most important in the whole bill, insofar as the various professions are concerned, in that it absolutely safeguards the licentiate.

I want you to note this particular subdivision. I think it is so important that I am going to read it again.*** Here is the safety valve to the profession—before a license can be revoked a hearing must have taken place. Here in this clause is the absolute safeguard for the medical profession and for that matter any profession licensed by the Department.

On this particular point I would like to quote you a few short sentences from the Medical Laws and Decisions: "The practice of medicine is a valuable right which cannot be taken away without due process of law. It has also been said that the two essential elements of due process are notice and the opportunity to defend".... "Although a statute may not expressly provide for notice, it will not be held unconstitutional or invalid, if the requirement of notice may be fairly implied therefrom." Going further the greatest authorities on medical jurisprudence say, "It is generally deemed sufficient, if the accused be notified and have a hearing. If this be done, the findings of the board are conclusive on the court."

I merely mention these particular phrases from decisions and authorities because some men do not understand the particular law. However, I ask you all to keep in mind Subdivision 5.

Subdivision 6.

"To formulate rules and regulations when required in any act to be administered."

Now the most important clause in the whole section, which is the second paragraph of Subdivision 6, states:

"None of the above enumerated functions and duties shall be exercised by the Department of Law Enforcement, except upon the action and report in writing of persons designated from time to time by the Commissioner of Law Enforcement to take such action and to make such report, for the respective professions, trades and occupations as follows:

The action or report in writing of a majority of the persons designated for any given trade, occupation or profession, shall be sufficient authority upon which the Commissioner of Law Enforcement may act.

For the Medical Practitioners six persons, all of whom shall be graduates of reputable medical colleges or universities and reputable physicians licensed to practice medicine and surgery in this State, a majority of whom shall not be representative of any one school of medicine and among whom three schools of medicine shall be represented.

In making the designation of persons to act for the several professions, trades and occupations the Commissioner shall give due consideration to recommendations by members of the respective professions, trades and occupations and by organizations therein.

Whenever the Commissioner is satisfied that substantial justice has not been done either in an examination or in the revocation of or refusal to renew a license, certificate or authority he may order re-examination or rehearings by the same or other examiners."

In designating who are eligible to this board we have taken care of Section 1341, which is exactly the representation as stated in the old law.

Now, while this society is in session we in the Department would be very pleased to have you recommend from your membership a list of men you would like to serve on the Medical Examining Board. You will note that the law states these men shall be appointed or designated from time to time. When a board is appointed it holds over until a new board is appointed. It is the aim of the Department to make these boards as near permanent as possible. This is the proportion which has always been followed: three regulars, two homeopaths or two eclectics or, in the event two eclectics have been appointed, one homeopath or vice versa. We have endeavored to secure the best men in the State to serve on the Medical Board which meets October 7.

I will not quote the last clause in Section 32, which states "All certificates, licenses and authorities shall be issued by the Department of Law Enforcement in the name of such department, with the seal thereof attached."

While all business is conducted in the name of the Department, we are nothing more or less than the administrator or business agent for the board. We can do nothing without a written report from this board. However, we do have the power to make arrests and enforce the law as laid down in the statutes, but the conducting of examinations designating schools and regulations, revoking licenses for any cause, is at all times in the hands of the Board of Medical Examiners.

Under this system the Board of Medical Examiners has more authority than it did under the old system. Here I wish to call your attention to the fact that this law was approved and went into effect on March 31, 1919.

Some questions have been asked of me relative to certain phases of the Department's work. One is the matter of reciprocity. The last Medical Board met in May and they reported and recommended that we establish reciprocity with the Western states, only Washington, Oregon, California, Nevada, Arizona, New Mexico, Colorado, Utah, Wyoming and Montana. At the present time we have established reciprocity with Utah, Washington, and Colorado. California has accepted several from this state lately, but we have no formal agreement. However, we have favorable replies from every western state and I think it will be only a matter of a very short time until we secure reciprocal relations with all of them.

The Department has been severely censured for not establishing reciprocal relations with every state in the Union. I might state that we carried out the instructions of the Board and there our duty ended. I can assure you that, if the Medical Board will recommend that we establish such relations with eastern states, we will carry out their instructions with utmost despatch. However, I would offer a word of advice, to this society and to the Board. We have received in the neighborhood of a 1,000 inquiries from eastern medical men asking about reciprocity, yet not one single medical man in Idaho has asked for credentials to submit to an eastern board. It seems that all men want to come West, and I doubt if it would be well to let down the bars. One thousand want to come here and none are leaving.

Another matter has been brought to our attention and some people think that it is a ruling of the Department, that is, temporary permits. The last Board reported and recommended that no temporary permits be granted. I doubt very seriously whether the Board has power to grant temporary permits. The Board can go beyond the law, but it cannot issue an order contrary to law. On this point I quote a sentence from Section 1346 of the Medical Practice Act, which says, "No applicant for a license shall be allowed to practice medicine or surgery or either of them until such license shall have been granted." So that leaves us with no argument on this point, the Board and the Department having no alternative in the matter.

In conjunction with the passing of Chapter 8, but by no means a part of it, the Legislature passed a law now known as Chapter 138, Session Laws of 1919, approved March 18, effective May 18. This law is objected to by a great many medical men who claim that it has arbitrary powers, in that, if a license is not so renewed by July of each year, the Department shall cancel same.

I called your attention to subdivision 5, which states that the Department could conduct hearings on revoking or refusing to renew a license. The Department has its duties clearly defined in Senate Bill 19, and, before it can do a single thing pertaining to the profession, it must have a majority report of the Medical Board. We never maintained, and under this law we have no authority to cancel a license, this being up to the Board of Examiners.

While I am on the subject I would like to go into this to give you an idea of the good accruing under this law, and not in contradiction to any view you might hold or for the mere chance to start an argument on the matter of renewal fees. In he first place, if you require a man to renew his license each year, it enables the profession and the Department to eliminate the quack or illegal practitioner in this way. He presents his fee for the renewal of his license. If complaint has been made, it is refused upon hearing.

Second, it enables the Department to keep an absolute check on every practicing physician, who he is and where he is located. It is the aim of the Department to get out a directory for each profession, something that has never been done in Idaho before. I had distributed here today a list of those who have paid this fee. It is not complete, but it represents the only authentic list, so far as it goes, of physicians in Idaho. On the medical record close to 1400 names are recorded, yet it has been established that there are less than six hundred practicing physicians in Idaho. I hate to make the statement, but I have been told that the medical records of Idaho are the laughing stock of the United States Public Health Service and the War Department. The very fact that you make an annual check and get out a directory of physicians, I am told by hundreds of professional people, is worth the money. We will send a directory to every licensed man and then, if a man has not complied with the law, all you have to do is to refer to your directory for confirmation as to his license. Already by this law we have discovered five men who have been practicing from two to twenty years without a license. The very fact that it keeps your records sraight is worth $2.00 to every single professional man in the state.

We are endeavoring to establish a professional library in conjunction with the State Law Library, operated on the same plan, and only medical men can secure the books. We also have on file a digest of all state laws and regulations and will act as a clearing house for information for the profession.

Due to the fact we have a consolidation of a licensed profession under one Department, it tends to promote efficiency. Due to the centralization we are enabled to keep inspectors in the field. Under the old system they lacked sufficient funds. If there are any old board members present they will bear me out on this point. In this way we are enabled to enforce the law without dragging in any professional man as a complaining witness. By this I mean all complaints are signed and prosecuted by the Department. We have already uncovered in one of the other professions one of the worst scandals ever pulled off in professional circles.

By and with your help and cooperation we will endeavor to maintain the standards of the profession on the highest possible level and strictly enforce the law against all illegal practitioners. To do so, your cooperation will be needed and appreciated. The Department will be glad to receive suggestions and advice at all times.

THE TREATMENT OF COMPOUND FRACTURE OF THE FEMUR.*

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Compound fracture of the femur has always been one of the most serious of battle casualties. The mortality was high, first, from shock and hemorrhage ;secondly, from acute infections (particularly gas gangrene) and, thirdly, from chronic sepsis. Patients recovering had a long period of invalidism and often the final results left much to be desired. Indeed, it must be confessed that the results obtained are a humiliating evidence of the inability of the general profession to handle this condition. The present is, therefore, a period of renaissance in the treatment of fractures of the femur. I believe that the lessons learned in military practice will find wide-spread applicability in civil surgery. This paper, is, therefore, presented with that object in view. It is based on our experience in Base Hospital No. 50, which covered 128 cases of compound fracture of the femur.

When a projectile strikes the shaft of a bone, the resultant fracture may take any one of an infinite variety of forms, depending upon the number and form of the fragments produced. These fragments occur in all sizes and shapes, from fine bone dust to large diamond-shaped fragments, six inches long. The smaller they are, the freer they are found to be from all attachments to periosteum and muscle and the farther they may be displaced from the line of the shaft.

In general, small fragments are projected in the same direction as the track of the missile, intraosseous and otherwise. This has a practical result of great importance. The first fragments which a projectile pushes forward bury themselves in the marrow of the shaft or the spongy tissue of the epiphyses, where they remain virtually foreign bodies, keeping up irritation and inciting continued suppuration.

When the force of the blow is not so great, the fragments are larger and they remain more or less attached to the periosteum and surrounding muscles. Small scraps of clothing or dirt often remain caught on the sharp points of these splinters, or sometimes firmly imbedded in a crevice between two adjacent fragments. The points of the splinters, as likewise the ends of the shaft, are bruised, crushed and inflamed and rapidly undergo traumatic osteitis. Fissures are very frequently found traveling up and down the shaft away from the injured area. These fissures are often so fine that even the x-ray does not reveal them. They are particularly present in fractures close to joints. Their presence explains the frequent occurrence of septic arthritis as a complication.

The delicate marrow tissue at the point of injury often seems, as it were, to have evaporated; no trace of it is to be found, its place being taken by a mass of splinters, clothing, dirt, blood clots and metallic particles.

The periosteum, on the other hand, is not so completely destroyed, as one would expect. It is often considerably torn but usually little of it is actually destroyed. Indeed, careful search will usually show that at some point on its circumference the continuity of the sheath has been preserved.

In brief, the region of the fracture may be said to assume the shape of an irregular spindle. In the center is a mass of clots pulpified and devitalized muscle tissue, foreign material and small pieces of bone arranged about its transverse diameter, while scattered from the medullary cavity to the exit wound are free and attached splinters of bone.

Primary injuries of blood vessels are in the main unusual, while, on the other hand, injuries to the sciatic and anterior crural nerves are considerably more common.

The degree of deformity produced by displacement and overriding is much more variable than is commonly seen in civil practice. Displacement varies with the extent and intensity of the blow, while the overriding which is usually considerable is produced by the thigh muscles which, in spite of their injuries, can still exert a powerful pull.

Whatever the type of fracture, the injury always extends much farther than would be supposed. The center of the injured area is a mass of clots, muscular debris and free splinters of bone. Above and below it are larger fragments more or less displaced but still attached to periosteum and muscle.

Such a violent local injury almost always produces an immediate reaction on the system generally. Some few show no reaction, but the great majority do. Some develop alarming and even fatal primary hemorrhage. More frequently with but slight loss of blood, severe symptoms of shock ensue, palor, lividity, coldness and shivering, shallow respiration and a feeble rapid pulse. This is not an infection, as it develops immediately after injury, the result of a sudden vasomotor disturbance. With the immobilizing of the injured member and the relief of pain, these symptoms rapidly subside.

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*Read before the Portland Acadamy of Medicine, Portland, Ore., Feb. 16, 1920.

With such an injury as has just been described, we have all the necessary elements for rapid callus formation within the wound itself, an active periosteum, stimulated by the bleeding, enclosing adherent and free bone fragments which are almost comparable to bonegrafts, and all about marrow tissue is scattered, ready to take up the work of bone formation. Within a few days a resistant enclosing belt is formed, within the protection of which normal repair can take place as in a simple fracture. Union in such a case may be singularly rapid. I have seen such a femur unite in twenty-five days, but unfortunately such an aseptic course was the rare exception, for it must be admitted that infection was the rule, and that infection was the one element which dominated the course of events in these cases, since it interfered with the normal activity of osteogenetic tissue, exciting, killing or inhibiting it according to the degree of its intensity.

Practically all infection is carried into the limb from the outside. Doubtless the degree of cleanliness of the skin and the prolonged contact of fresh wounds with the ground or dirty clothing have their influence but at most they must be of secondary importance, since observation has shown that all infection starts deep, at a time when the skin and subcutaneous tissues are still healthy.

Studies of the French have shown that bacterial activity begins about deeply situated particles of clothing or other foreign matter at about the ninth hour after injury. At this time there is no growth on the surface. The first organisms to multiply are the spore-bearing bacteria. From six to eight hours later the streptococci and staphylococci begin to develop.

From a pracitcal standpoint it may be said that two factors always determine the seriousness of the infection. They are the extent of muscular destruction and the existence of anatomic conditions which produce complete enclosure of the wound. The muscle and bone debris surrounding a fracture furnish a perfect medium and the thick muscles of the thigh, together with the tough fascia lata which always tends to close up the wound, produce a ready made incubating area.

If clearance and exposure of the region are not rapidly effected, sepsis supervenes. In rare instances this is so virulent and runs such a rapid course that death from general septicemia soon follows. In other cases gas gangrene sets in, runs a rapid course and often ends fatally. In our cases this occurred ten times, four of which ended in death.

Profuse and prolonged suppuration may set in, resulting in the development of secondary abscesses, also producing secondary hemorrhages, extensive sclerotic and lardaceous changes in the surrounding tissues, and giving rise to visceral degenerative changes which were responsible for the greater part of the mortality.

Osteomyelitis more or less localized is the constant accompaniment of all infected fractures. The infection begins in the medullary cavity, about particles of foreign matter which have been carried there. The marrow tissue. promptly dies, free bone fragments die and become at once sequestra. Partially attached fragments, which under aseptic conditions would become active bone grafts, lose their circulation by the formation of septic thrombi and so also die and form sequestra. The same fate often follows firmly attached fragments. Infection makes its way along the fine fissures which often extend up and down the shaft. In this way septic arthritis of the knee and hip is produced.

The callus thrown out about the ends of the bones surrounds these sequestra, forming a true involucrum, with sinus openings, thru which pus is discharged. The periosteum is much more resistant; an infection which destroys bone and marrow may stimulate periosteum to increased activity, producing an overgrowth of misshapen callus enclosing sequestra, the so-called mutillocular callus, which is union in the presence of sepsis. On rare occasions sepsis is so severe as to destroy all osteogenetic power, resulting in complete non-union.

All treatment must, therefore, in the first place contemplate the eradication of infection and the combatting of sepsis. Experience of military surgeons finally resulted in the universal adoption of the series of procedures which are called by the general term debridement. This treatment contemplates not merely the thoro opening of a wound and the establishment of drainage, but the complete removal of all foreign matter, the cutting away of all devitalized tissue and the complete exposure of the medullary canal. Here the general agreement ends. The question of the disposal of bone fragments has produced divergent views. The plan which was probably most generally followed was that adopted by the American Army. This consisted in the removal of all loose splinters and the careful preserving of all fragments large or small which still had any periosteal attachments. This method undoubtedly had the practical merit of giving fairly good results to the greatest number of cases, in view of the lack of time and rush of work produced by the military situation. But it had the disadvantage of making practically every case run a more or less septic course and finally unite with a greater or less amount of osteomyelitis and sequestrum formation. For experience demonstrated absolutely that suppuration was encouraged and prolonged by the presence of fragments either free or attached. However, in spite of the sepsis the results in the main were far better than would have followed a ruthless tearing out of all attached fragments with the resulting high percentage of non-unions which would have inevitably followed.

Certain French surgeons, particularly those of the school at Lyons, have practiced a routine removal of all fragments by a careful subperiostial resection. The author, while on a visit at Lyons, had an opportunity of seeing the work of Leriche and of noting the results of this method of treatment. The results were undoubtedly far superior to those obtained by the great majority of military surgeons. The treatment as carried out by Leriche requires very accurate preliminary radiography. Long carefully placed incisions expose to view the whole region of fracture. With heavy bone-holding forceps each attached fragment is seized and firmly held, while with a set of sharp edged rougines the periosteum is carefully removed, always carrying with it a thin shaving of bone. Under no circumstance is a fragment to be forcibly torn out. When finished a more or less complete cylinder of periosteum, lined with thin shavings of bone, bridges the gap across the fracture. Such an operation properly done requires time and careful technic. While its general adoption was precluded by the stress and hurry of the military situation, in civil practice, where these conditions practically never obtain, this method should have great possibilities.

Suppurating compound fractures, up to the time that the x-ray shows definite evidence of callus formation, may be treated in this way with advantage. The author's own experience with the operation was confined to this class of case. We found that suppuration ceased in a very few days and that callus formation went forward rather more rapidly than before. At this stage the operation is somewhat easier, because the infection has caused a thickening of the periosteum which makes it easier to see. Splinters with very firm periosteal attachments will be found with roughened surfaces undergoing beginning degeneration.

On older suppurating fractures (over a month old), when the radiograph shows beginning callus formation, this procedure is dangerous and is not to be followed. The surgeon should then content himself with opening abscesses and removing obvious sequestra. In these cases the callus actually forms an involucrum which encloses one or more sequestra resulting from splinters. Such a callus tends constantly to increase by the deposit of new bone on the outside and the contained cavity increases, due to absorption of the inner layers. When such a case gets to a stationary stage, it is to be treated along the lines applicable in any case of osteomyelitis. One side of the callus must be chiselled away, sequestra removed, and the cavity flattened out as much as possible, so that the adjacent soft parts may drop in and obliterate it.

Reduction and fixation of compound fracture are to be effected almost entirely by external appliances. Internal fixation (such as plating, banding and wiring) was given a very extensive trial in the early months of the war and is almost exuniversally condemned. It is often a great temptation to band or wire a long splintering fracture, but equally good results can be obtained without them, and much unnecessary risk of infection is thus avoided.

Since the beginning of the war the mechanical treatment of fractures naturally passed thru many phases. But the tendency was always toward greater simplicity, depending more and more on the principle of traction (that is, extension of the limb in the physiologic direction), combined with suspension and for this purpose the Thomas splint has become the very key stone. I believe that the

Thomas splint, which abroad has long flushed unseen, is destined to come into general use in the United States and to be adopted here for civil surgery. I believe that, with it properly applied in the great majority of femur fractures, one may obtain a good functional and anatomic result.

In the use of the Thomas splint certain fundamental points must always be observed. The size of the ring is of no great importance but the posterior portion must press firmly against the tuberosity of the ischium. This is produced by a vertical pull which is maintained by suspending weights, playing over pulleys attached to an overhead frame of light wood or metal. These suspending weights should be just enough to balance the weight of the limb.

Posterior support is had by doubled strips of flannel, running behind the limb from one side bar to the other, forming a continuous trough the whole length of the leg.

Extension is secured by weight and pulley. The initial weight should always be the maximum. It is a mistake to start with a small weight and gradually increase. Rather start with the maximum and gradually scale it down.

Traction is secured by three inch moleskin strips, applied as high on the limb as the location of the wounds will allow. The lower ends are attached to webbing bands which in turn are attached to the cord forming a part of the weight and pulley system.

In certain fractures, particularly those of the lower third, we found that traction applied direct to the bone thru callipers or ice tongs was vastly more effective. With this method a much smaller weight was necessary to secure adequate extension. Our curative workshop turned out a very practical calliper, provided with a double set of lock nuts which kept the points constantly in contact with the bone, preventing the points from sinking too deeply into the bone and, on the other hand, kept them from slipping if the weight happened to be removed.

A few principles should be remembered in inserting the points of the tongs. The skin about the knee is prepared as for any operation. The patient is given gas or ethyl chloride. Draw the skin over each condyle upward and forward. Make a half inch incision going down to the bone; without relaxing the skin, insert the point of the tongs. The points must be in direct contact with the bone but ought not to penetrate it. The exact point of insertion is important. The cavity of the knee joint must be avoided. On the inner side make the cut a finger's breadth above the adductor tubercle, and on the outer side the same distance above the most prominent part of the external condyle and anterior to the iliotibial band.

The most common mistake is to place the points too far forward. Whatever the method by which the extension is applied, this one unvarying rule should always be observed; traction must be applied to the distal fragment in the direction of the long axis of the proximal fragment. Failure to apply this principle is the usual cause of faulty reduction. It is also to be remembered that continuous traction is more efficacious when exerted on parts whose muscles are relaxed. The relaxed position in the lower extremity is semiflexion of the ankle, knee and hip. These positions should be utilized as much as possible, depending on the location of the fracture.

According to the location, certain fairly constant deformities are encountered, produced in part by the fracturing force but more often by the pull of the muscles on the fragments. In the upper third the upper fragment is brought into a position of abduction, external rotation and flexion on the pelvis. To bring the lower fragment into line, the limb should be suspended in marked abduction and external rotation with the hip and knee flexed. Frequently in these cases there are extensive wounds near the hip, so situated that the ring of the Thomas splint interferes with their dressings. In such a case a Hodgen splint may be substituted with the limb in a position of abduction, external rotation, hip flexion and the knee nearly straight. With this apparatus the initial weight required may be as much as forty pounds.

In fractures of the middle third the upper fragment is tilted forward and slightly rotated, while the lower fragment is drawn sharply upward and backward. This deformity is overcome by strong traction, with the leg straight or with the knee flexed. There is normally a slight anterior bowing to the shaft of the femur and in these fractures this is likely to be lost, unless adequate support to the posterior surface of the thigh is furnished.

In fractures of the lower third the lower fragment is tilted sharply backward by the action of the calf muscles. This is best overcome by traction in the line of the upper fragment with the knee flexed to ninety degrees. These fractures gave us our greatest difficulty in securing reduction and we got our best results with ice tong extension. The Pearson adjustable knee flexion attachment to the Thomas splint will be found very useful in these cases.

The deformities which were most frequently seen and which must be guarded against, particularly, were four in number: (1) Excessive shortening because of inadequate traction or poor position. (2) The loss of the normal anterior bowing of the shaft. (3) Rotation of the lower fragment on the upper with the result that the toes permanently pointed in or pointed out. (4) Abduction of the upper fragment.

Malpositions discovered early enough, that is, while the callus was still plastic, were subject to revision by manipulation with a fair degree of success and safety.

Non-union was comparatively uncommon, there being six cases in our series, each one due to extensive loss of bone substance. Their treatment consists in the application of suitable bone grafts. Metal plates are never to be used.

In infected cases a period of at least six months from the closure of the wounds should elapse before operative treatment is undertaken.

When union had become firm our patients were all given a walking Thomas splint. This consists of the ordinary Thomas splint with the lower portion cut off and the ends bent in at right angles, so that they fit into holes bored in the heel of the shoe. They were usually worn from six to eight weeks. They were removed at night and several times during the day to allow knee flexion. Their use in walking transferred the bulk of the weight directly to the pelvis and thus prevented a great deal of secondary bowing, while the callus was still soft.

In this paper attention has been called particularly to those points which are applicable to civil surgery. Special emphasis has therefore been laid on: (1). The operative cleansing of wounds, and (2), the reduction and fixation of the fractured bone by means of the principles of traction and suspension, and particularly the almost universal applicability of the Thomas splint.

SIMPLIFIED TREATMENT OF INGUINAL HERNIA.*

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I appreciate that the Board of the Portland Medical Society in this meeting allows me to submit to your criticism the methods of treatment of inguinal hernia, such as we have used in the Surgical Clinics of the University of Utrecht since 1908. Before the description I will mention the reasons that led us to these methods. One of them is that every surgical procedure needs to be as simple as possible, and be based on the relative value which the different tissues possess in the construction of our bodies. The second is that there is an essential difference between the cause of an indirect or lateral hernia and a direct or medial rupture. And because treatment is best when it attacks at the essential origin, we decided upon two different methods for these ruptures.

Remembering the anatomy of the inguinal region, we find, after splitting the skin, the underlying fat tissue and the more or less developed superficial fascia, the white and glistening fibers of the aponeurosis of the external oblique muscle, slanting downwards and forming the outer or front side of the inguinal canal. We recognize the external ring there, where these parallel fibers partly cross and interlock with another and where the cord is directly to be seen. After opening this aponeurosis parallel to its direction, we see the lateral part of the cord and call the place the internal ring, where it comes out from the abdominal cavity. Lifting up the cord with the structures belonging to it shows us the back side of the inguinal canal. This posterior wall is formed by the internal oblique and transversus muscles, in the lateral part consisting of plain muscle fibers, whereas its medial part to a more or less extent is formed by the conjoined tendon of these muscles. Below is the ligament of Poupart, a stronger part in the aponeurosis of the extenrnal oblique muscle, offering at the same time origin to the most medial fibers of the internal oblique and the transversus muscles. The latter fibers run about horizontally and form the so-called conjoined tendon, that acts as muscle sheath for the rectus muscle. Because they run horizontally and the ligament of Poupart

*Read before Portland City and County Medical Society, Portland, Ore. Feb. 4,1920.

slants downwards, there remains on the medial side of the back wall of the inguinal canal a triangle, where to a less or greater extent is no muscle fiber or its tendon, and this wall therefore is formed mainly by connective tissue. I wish to emphasize that the less the internal oblique and transversus muscle are developed and the shorter the distance is, in which they originate from Poupart's ligament, the larger the extent of the triangle mentioned must be. This condition may readily be supposed in tall individuals, showing a moderate or even delicate development of the entire muscle system, having a long, flabby abdomen, with very sharp-slanting groins and a belly-wall bulgng at both sides of the recti muscles, the so-called "ventre trilobee" of the French authors.

About the sacs the following: In the indirect or lateral hernia the sac is situated within the cord structures, is found there as a long, stretched cavity, and has a very thin wall. Frequently it is on one side more or less attached to the cord structures. It never contains in its wall either the bladder, the insertion of the intestine or the omentum· The pedicle of the sac is a very narrow one and slips thru the so-called internal ring at the outer side of the epigastric artery.

We consider this sac a congenital one, as a lack of obliteration of the vaginal processus for the testicle, because it is prevalent in the male; because in cases of incomplete descensus of the testis we always find the same type of sac, then even firmly attached to the cord structures; because hydroceles of the cord, tho rare, occur and because the hydrocele of the testis sometimes communicates with the abdominal cavity, in that case being practically a hernia in which the intestine cannot descend. I find the same opinion expressed in the Mayo papers, 1909, page 328. where it is said that "in all probability many of these sacs are congenital and have become hernias later in life."

Far different is the condition that shows in the sac of the direct or internal hernia. Its wall is thicker, evidently formed by more tissues than merely the peritoneum. In this wall sometimes either the bladder or the insertion of intestinal omentum is found. Frequently it is preceded by a layer of preperitoneal fat tissue· Its shape is more spherical, its base is wider and may frequently be felt as a sharp-edged ring. It is always situated outside the cremaster muscle that surrounds the cord, using with rare exception the track of the latter for trail. When developed to a moderate size, the individual standing erect, it buldges obviously forwards, but disappears directly in the horizontal position. These characteristics lead us to the supposition that the primary cause of this type of hernia is mainly a mechanical one, depending on gravity and intraabdominal pressure and favored by a deficiency in resistance of the belly wall, if not even by a total lack of this wall.

This striking difference in origin necessitiates a different treatment. In the type of hernia first mentioned we find as essential features the presence of a congenital sac, the remainder of the non-obliterated vaginal processus, together with a muscular structure that at least in the beginning needs not to be either atrophied or injured by the hernia. In the second or direct type of hernia we find muscular or tendinous tissue, that gave in to the force of gravity and intraabdominal pressure, that means a too weak or deficient belly wall.

The surgical treatment of hernia consists in extirpation of the sac and closure of the opening, two separate operations of different value in either type of hernia. When we extirpate the sac, and we duly take care not to overlook important structures descended in its cavity, this operation is right without any doubt. When, however, after that we stitch our thread-armed needle thru the belly wall, especially thru its muscular structures, and after that thru Poupart's ligament and tie these sutures tightly, we not only change the anatomy of this wall, but besides that run the risk of causing necrosis of the tied muscle fibers. And if so, we surely cause damage to the belly-wall. For all kinds of structure the muscle is the most resistant against uninterrupted pressure. We must in every herniotomy bear in mind that the strength of this wall depends entirely on the internal oblique and transversus muscles, these being the only structures in this region with abundant nerve and blood supply. So we must always endeavor not to damage these structures, unless a deficiency of the belly wall, in truth a real hole in it, necessitates doing so.

In the indirect type of hernia we sever the sac from the cord, open it and push its contents back into the abdomen. Then we twist the sac, pulling it at the same time as far as possible outward, taking care to separate it carefully at its base from the surrounding tissues, tie it with a thru and thru suture and sever above this. The distal part may be taken out, but this is not necessary. We always notice that the central part then slips readily into the abdomen and the fibres of the internal oblique and transversus muscles, running above the cord and sac fall directly downward on the fibers below, and in that way automatically close the opening called the internal ring, leaving just enough space for the cord to pass thru.

The method of treatment of the second type will be clear. After cutting or reposition of the sac an opening remains generally in the belly wall, because there is not sufficient muscular or tendinous tissue to close the defect automatically. In these cases we use the method of Bassini, but try to keep as little muscular tissue as possible in the sutures. We take principally the surrounding tendinous structures and sew these to Poupart's ligament. We object to methods different from the Bassini type, because most of them give rise to constriction of the cord, and therefore might interfere with the nerve and blood supply to the external genitals.

When we first used these different methods. our records showed a slight increase of recurrences, which indicated that our suggestion had been right. For most of these recurrences occurred in indirect hernias and were of the direct type. We noticed at the same time that the indirect hernia, when of long existence or accompanied by weak or spare muscle structures, tends to enlarge its base to the medial side, taking the epigastric artery and surrounding tissues with it. It seemed to us that the longer the hernia has been there, the more it has interfered with anatomic conditions as well as with the vitality of the muscle tissue. These cases were followed by recurrence, the surgeon having followed too vigorously the theory and anticipated a return to normal conditions after single extirpation of the sac. No wonder that all these recurrences were of direct type, being due to a deficient belly wall that ought to have been fortified by Bassini sutures.

After this experience we now treat the larger number of indirect hernias by simple ablation of the sac, and reserve the Bassini method for the direct hernia and those cases of indirect hernia, where the absence or deficiency of the muscular structures justifies the use of sutures.

EARLY INVOLVEMENT OF THE CENTRAL NERVOUS SYSTEM IN SYPHILIS*

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In recent years the clinical detection of early involvement of the central nervous system in syphilis has become possible, chiefly thru our great increase of knowledge of the character and activity of the infecting organism, the tissues and organs for which the organism manifests a selective preference, and the histologic and serologic reactions of these tissues to injury by the organism and its toxins.

It is necessary first of all to have a clear picture of the mode of invasion of this organism. We know that the treponema pallida, once it enters the tissues, tends to migrate with great rapidity from the primary sore; indeed, some observers believe that it has already reached adjacent lymphatics and possibly the systemic circulation before the actual appearance of the chancre. Clinically the almost simultaneous swelling of lymphatic glands adjacent to the primary sore seems to bear this out. At all events, the infection very early becomes generalized, a condition of syphilitic septicemia existing. Proof of this is shown in that the treponema has been successfully isolated and cultivated from the blood of man and in experimentally induced syphilis in rabbits and monkeys.

The next stage in the activity of the treponema is its early invasion of the walls of vessels, especially the small ones, there giving rise to lesions in the intima. Capillary walls are pierced and the lesions here are perivascular. In each case the lesion produced is essentially a connective tissue proliferation; indeed, the treponema seems to migrate with purposeful intent towards connective tissue, there to find favorable lodgement. Those that fail to migrate soon perish.

The histologic picture of the lesion produced is as constant and characteristic as that of tuberculosis; indeed, the lesions are sometimes so similar that histologic diagnosis is difficult and one must rely upon demonstration of the organism, or on certain fairly constant histologic differences. The treponema, like the tubercle bacillus, produces a relatively mild toxin which is capable of causing marked proliferation of connective tissue; endothelial cells also proliferate to some extent. The result is a granuloma similar in size and structure to the miliary tubercle. The treponema pallida is usually found within this lesion, often indeed within giant cells. Many of these granulomata lying close together constitute a small gumma, which, if it be present in the intima of a small vessel, may partly or completely obliterate the lumen. Syphilis is in its broadest sense a vascular disease.

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Consideration of the foregoing gives one the key to a clear understanding of the method of involvement of the nervous system, namely, vascular disease. After the treponema has escaped from the vessel wall into the surrounding connective tissue of the meninges, it causes hyperplasia and sclerosis thru the medium of its toxin. Neuroglia, a tissue so similar in morphology and function to connective tissue, will also react strongly to the toxin.

Broadly speaking, it is possible, with these facts in mind, to understand that the central nervous system, with its rich supply of small end-arteries and its extensive meningeal covering, may be involved widely or locally; furthermore, the symptoms produced will necessarily depend upon interference with the normal function of center, tract or nerve. For example, partial or complete obliteration of a vessel may impair or abolish the function of one of these, resulting in some form of paresis, paralysis, anesthesia, paresthesia, or aphasia; of these the monoplegias are probably the most common. The thickened, sclerosed meninges very frequently constricts or pinches the trunk of an outgoing nerve, especially those of the cranium, and it is precisely this lesion which most frequently gives tell-tale evidence of the nature and location of the malady. Thus, the most pains-taking examination of the cranial nerves is indicated.

That the central nervous system is very frequently involved in secondary and tertiary syphilis has been abundantly demonstrated. In the secondary stage a common, almost a constant symptom is a vague sense of nervousness, headache, vertigo, etc. Examination of the cerebrospinal fluid often reveals changes. Ravaut claims to have found changes in 70 per cent. of cases examined; Plant in 66 per cent. and Nonne and Montoux in 40 per cent. Gennerich believes that all early constitutional cases will, after treatment with arsenic or mercury, exhibit an increase of lymphocytes and globulin. Treponema have been demonstrated in the cerebrospinal fluid; it is highly probable that they do escape into the fluid constantly in secondary syphilis and then implant themselves elsewhere on some other part of the meninges. It is likely, too, that the posterior root ganglia become involved by this process which we may name meningeal implantation-infection, resulting eventually in tabes dorsalis; at least our hypothesis furnishes a reasonable explanation of the method and location of onset of this malady.

Clinical manifestations of early involvement may conviently be classified into two groups:

1. Non-focal, in which no clue to the actual seat of involvement can be ascertained.

2. Focal, in which a definite place of involvement may be found. It is probable that non-focal symptoms often precede focal symptoms, and as such are often entirely overlooked. Many such cases are diagnosed as neuresthenia, psychasthenia, hysteria, etc., until the time that some focal sign points the way to a definite diagnosis.

In civil practice the onset of neuresthenia is often attributed by the patient to some such cause as shock, fright or a debilitating illness, etc. In military practice in base hospitals overseas I have personally found a number of cases of definite nervous system syphilis that were admitted with a diagnosis of shell-shock. Often on careful analysis the matter of actual shell-shock in some of these cases was questionable. Since returning from overseas I have seen two clear cases of nervous system syphilis that were treated for long periods in military hospitals as shell-shock cases.

The symptoms of the non-focal type are usually very indefinite, as for instance, frontal or occipital headache, often severe and intractable, or a sense of verticle pressure, or suboccipital stiffness or tenderness. Coarse and fine tremor of the fingers is very often seen. Darting pains, muscular cramps, skin areas of anesthesia and paresthesia are frequent. Mentally, there is inability to concentrate, a tendency to be emotional, irritable, or morbid, with vague sense of fear. Noises startle and crowds confuse. The reflexes are quite unreliable and often vary from day to day.

At any time this non-focal type may pass over to the focal in which clear evidence of organic change is revealed. Organic change is precipitated in three ways. First, by anemia of areas supplied by arteries that have become almost or entirely obliterated. Such are the palsies, paralyses, the aphasias and disturbances of special senses. Secondly, by pressure of a mass such as a gumma, accompanied usually by that unique form of pressure, the choked disc, in which an increase of intracranial pressure causes the dura to partially invaginate into the foramen transmitting the optic nerve, thereby pressing upon the latter. Thirdly, by sclerotic pinching of cranial nerves as they perforate syphilitic meninges. This latter form of involvement yields as a rule the earliest focalizing signs and symptoms. Therefore, careful examination of each cranial nerve in turn is requisite, if we wish to discover early involvement. For instance, the retinal veins may be found congested and the visual and color fields constricted without choked disc. Oculomotor palsies and inequality of pupils point to involvement of the 3rd, 4th and 6th nerves. Impaired hearing or vertigo indicate the 8th, etc. This hypothesis of meningeal pinching is strengthened by the results of treatment, in which these symptoms may often be entirely abolished.

Finally, it must be emphasized that no diagnosis of nervous system involvement should be made without the examination of the cerebrospinal fluid. While it is true that a negative fluid does not always exclude involvement, a positive fluid is nearly always found even in slight involvement. It is common to find the blood yielding a negative Wassermann while the fluid is positive, a fact so often neglected. A negative blood test as an indication of freedom of the nervous system is entirely worthless. Clinical signs and symptoms, together with cerebrospinal fluid examination, will alone give us accurate information.

Our endeavor in this paper has been to set forth step by step those theoretical and practical considerations that may aid us in the early recognition of this serious malady. I have purposely not touched upon the later manifestations—those due to parenchymatous changes, namely, tabes and paresis. It is to be hoped that some day the incidence of these advanced and incurable diseases may be diminished by the more frequent recognition of early manifestations.

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A MODIFICATION OF THE WASSERMANN TEST

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In our eagerness to make the Wassermann test so sensitive that no case of syphilis will escape our findings, there is danger that false positive reactions may be obtained. Making the technic too complicated, or adjusting the relative amounts of antigen, amboceptor and complement to too close a working margin, will increase this menace. The nature of the test is such that even the most careful worker will have "troubles" and at times will get results that he hesitates to report, when he knows that a slight variation in the amount of complement may make a positive out of a normal serum or a negative of a luetic serum. Complicating the technic, or reducing the working margin, increases the chances for errors and this may be of more consequence than any gain in sensitiveness. With a complicated test and a close working margin technical errors are apt to occur and this may explain why the results obtained with the Wassermann test by different laboratories at times are at variance. Therefore, if the test can be simplified without a sacrifice in sensitiveness, it will gain much in practical value as a means of diagnosis.

By making use of the complement native in the human serum one external factor—the guinea pig serum—can be eliminated. Another advantage of using the patient's serum active is that the amboceptor (syphilitic antibody) content per unit of serum is high, for it is a well known fact that a large percentage of the syphilitic amboceptor is destroyed during the heating necessary for inactivation. But the complement content of human serum undoubtedly varies considerably in different specimens and may be so small that it is not sufficient to clear the controls, when small quantities of serum (0.1—0.2 cc.) are used. In the Hecht-Gradwohl test this sometimes interferes and this, together with the rather formidable array of tubes required for the titration of the complement in each individual serum, lessens the practicability of the test.

From tests we have made it appears that in any given quantity of luetic serum there is present sufficient amboceptor to fix all the complement native in that serum, when incubated with an excess of a suitable antigen. It is, therefore, not necessary to titrate to determine the amount of complement, and a large enough quantity of serum can be used to insure the presence of complement well in excess of that needed for the cell-amboceptor indicator used in the test, and to overcome any anticomplementary tendencies of the specimen to be tested.

This indicated to us a very simple complement fixation test for syphilis, viz: to incubate the patient's blood or serum with an excess of a good antigen and later test for free complement. We have now run a large series of tests parallel with the regular test and we believe our modification offers the following advantages.

1. Simplicity (no guinea-pig serum needed for complement, no titration of complement in patient's serum.) 2. Saving of time (test can be completed in about one hour after blood has been drawn). 3. Gain in sensitiveness (no lessening by heat—inactivation—of the amount of the reacting substances in the patient's serum).

We have come to use the following technic: 1. Into each of two test tubes is placed 1 cc. of normal physiologic salt solution. 2. To one tube is added at least 20 units of the Noguchi acetone-insoluble antigen, the unit as determined by the usual method[1]. It is important to have a good antigen that is not anticomplementary, so that an amount well in excess of that necessary to satisfy all the amboceptor-complement content of the serum can be used. 3. To each tube is added 1 cc. of the patient's blood and the tubes shaken to mix the contents and then allowed to stand for half an hour or more at room temperature. 4. The clots are then loosened, the tubes centrifuged and the supernatant fluid pipetted off into clean tubes. 5. To each tube is added 1-2 cc. of a 5 per cent. suspension of sensitized sheep cells (cells and amboceptor as made up for the usual method), and incubated in water bath for half an hour, when results can be read.

Plain sheep cells can be used, as the majority of serums contain some native antisheep amboceptor. To those deficient in this (determined after short incubation) rabbit serum antisheep amboceptor can be added and incubation completed. However, an excess of amboceptor does not seem to interfere here, as practically the same results are obtained. The use of sensitized cells on all is preferable, as that simplifies the technic and more clear cut reactions are obtained.

The amount of patient's blood can vary within wide limits. We have obtained clear ++++ reactions in syphilitic cases, where as much as 5 cc. were used. (When increasing the amount of blood the amount of antigen used must, of course, be correspondingly increased). If too small quantities of blood are used, there will be some specimens where the control tube fails to clear, indicating an insufficiency of complement. We have found 1 cc. to be sufficient in practically all cases, and this has been the standard amount used in our series.

Half an hour is sufficient for the fixation of complement at room temperature, so test can be completed in about one hour after blood is drawn. If inconvenient to complete test at this time, tubes can be allowed to stand for several hours before the sensitized cells are added, i. e., as long as complement remains active in control tubes.

Specimens that come in already clotted can be run by using the serum the equivalent of 1 cc. of blood. Any serum can be run, where complement is still active so that control tube clears up perfectly, and this may last for several days under favorable circumstances. Negative results can be reported with safety but positives on specimens more than a day old must be questioned, due to anticomplementary tendencies of all serums on standing. Our observation has been that positive serums will generally lose complement quicker than negatives, so control tube will give a ++++ reaction if blood has stood too long before test is made, some as early as twenty-four hours. This would indicate more or less antigenic properties of positive serums (cholesterin content?).

We have now on record a series of 2657 cases that we have run in parallel with the usual test and have obtained the following results:

		known treated cases
Negative reaction in both	1822	24
++++ reaction in both	331	6
Same weak reaction in both	35	1
Usual test negative, modification positive	166	50
Usual test weak positive, modification stronger	242	30
Usual test weak positive, modification negative	36	3
Usual test weak positive, modification weaker reaction	25	0
Total	2657	114

As most specimens come to us without any information as to the history or symptoms of the patient, we have been unable to obtain all the data that would be desirable for a proper analysis, but from what we do have we wish to point out the following:

1. In the great majority of cases the reaction is identical with that obtained with the usual test.

2. Of the series 114 were known to be treated cases, and these gave results as indicated in the chart above. Undoubtedly a much larger number

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[1] Magnusson, G. O.: J. A. M. A., Vol. 71, p. 2056, Dec. 21, 1918.

were included in the series but these may indicate the approximate proportion in the different reactions. Once negative with this test, the reaction rarely returns upon discontinuance of treatment. Insufficiently treated cases almost invariable show a stronger reaction and may persist strongly positive, even after the other tests have become negative. Of the 166 cases that gave negative results with the usual test and positive with the modification, 72 gave a ++++ reaction. Nearly every case of these where we could obtain particulars gave history of treatment. Others showed very suspicious history or symptoms and were later proven syphilitic. These reactions are strong evidence that this test is considerably more sensitive than the usual test.

3. On recently infected cases positive reactions are often obtained earlier than with the usual test.

4. Cases of syphilis of the nervous system, that give a positive spinal fluid but negative blood reaction with the usual test, will in some cases give a positive blood reaction with this method.

5. It is less likely to give weak non-specific reactions due to anticomplementary substances, as all cases on which we have been able to check up that showed a weak reaction with the usual test and negative with our modificaion proved to be free from syphilitic infection.

6. The test is exceedingly simple and offers very little chance for error in technic. Titration of the complement content of each serum is not necessary, as in syphilitic serum there always is present enough amboceptor to satisfy all the complement present.

7. It eliminates the need of guinea pig serum for complement and that is of considerable practical value.

8. One disadvantage with the test is that only fresh serums can be tested. While complement remains active for a couple of days or even longer under favorable conditions, any result other than a clear negative in specimens more than twenty-four hours old should not be accepted as reliable.

While the series contains several cases suffering from other conditions than syphilis, we wish to check up further as to whether or not these might interfere with the test. Report will be made later of a series of known cases—carcinoma, tuberculosis, acute infections, etc.

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ACIDOSIS OF UNKNOWN ORIGIN*.

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Attention has recently been focused upon a symptom-complex that has arisen concomitant with the wave of the influenza epidemic that has recently swept over the country—a group of symptoms quite unlike the ordinary manifestations of the disease, altho supposed by some to be due to the same infectious agent. This train of symptoms consists mainly of headache, extreme drowsiness, nausea and vomiting, with or without diarrhea and fever, of two to seven days duration and occasionally ending fatally. It is accompanied by no marked physical findings but on examination of the urine one can demonstrate excessive amounts of acetone. Following are a few case reports of the writer's series.

Case 1. Child, age two and one-half years. Had been feeling apparently perfectly well and suddenly began to vomit at night from no known cause. There were no chills or diarrhea, altho the mother says the temperature was slightly elevated at the beginning of the attack. The child could not even retain water on its stomach and complained of pain in the head. Physical examination was entirely negative. Thinking that we were dealing with the ordinary periodic vomiting of children, we examined the urine for acetone which we found in alarming amounts. Under treatment the symptoms were relieved in forty-eight hours and the child became perfectly normal.

Case 2. Brother of child reported in case 1. Seen the day following recovery of sister. Was seized with generalized pains in the abdomen, mild diarrhea, nausea and vomiting. No fever or chills. This patient was not drowsy. Physical examination was negative, but examination of the urine again showed enormous amounts of acetone. This patient recovered in forty-eight hours after treatment was begun.

Case 3. Adult, age 26 years, an aunt of the two patients just reported and living in the same house. Complained of drowsiness, headache, backache, pain in the legs and persistent vomiting. There were no chills, fever or diarrhea. The physical examination was entirely negative except for a marked odor of acetone on the breath. The blood showed leukopenia with a neutrophile count of 81 per cent. Urine examination revealed heavy traces of acetone. Recovery in forty-eight hours.

Case 4. Girl, age 19 years. Reported by the writer several years ago as a case of Still's disease with the usual cardiac involvement. Was suddenly taken ill with fever, chills, headache, sweating, drowsiness and persistent vomiting. She was seen twelve hours after the onset, at which time she had a temperature of 101°, with extremely rapid pulse and prostration. She complained of a soreness in all her muscles. As in previous cases, the urine was saturated with acetone. She was put on the appropriate alkaline treatment and improved for twenty-four hours, after which time vomiting began again and the patient died of cardiac failure.

Case 5. Woman, age 35 years. Had been feeling tired and heavy for twenty-four hours, with intense headache, backache, chills and fever. There was no cough, vomiting or diarrhea. She was first seen at 2 p. m., at which time urine examination was entirely negative. At 8 p. m. of the same day she was seized with nausea and vomiting which persisted all night. The specimen taken the following morning showed four plus acetone. Under treatment with bromides and alkalis the vomiting stopped in twenty-four hours.

Case 6. Woman, age 33 years. Complained that three days previously she had lost her appetite, had headache, malaise and felt drowsy. She had no vomiting or diarrhea. Physical examination at our office at 3 p. m. was entirely negative, with normal pulse and temperature. White blood count showed a leukopenia of 3,500 and the urine showed a fairly heavy trace of acetone. At 8 p. m. of the same day the patient began to vomit and complained of pain and pressure in the abdomen. With this there was severe diarrhea. The vomiting was controlled within twenty-four hours but the diarrhea persisted for forty-eight hours and the urine showed acetone for four days after cessation of all symptoms.

Case 7. Woman, age 23 years. Complained of headache, generalized muscular pains, fever, chills, slight cough and hoarseness. She was obstinately constipated. For four days the temperature persisted at 101° degrees with rapid pulse. During this time the patient felt bright and was not nauseated. On the fifth day she became drowsy and was kept awake with difficulty. She was extremely dizzy and nauseated. There was a tenderness of all the muscles of the body. With the accession of these symptoms the urine was examined for acetone which was found to be present in excess. In this patient the somnolence and nausea persisted for three days and left her extremely prostrated and weak.

These cases are sufficient to demonstrate the mode of onset and the main symptoms of the condition. The amount of acetone found in these patients is alarming and compares with that seen in diabetic patients in coma or in cases of extreme starvation. That it is not due to either of these two conditions is readily seen. The acetone intoxication is the cause, not the result of the gastrointestinal symptoms, for several of these cases were seen just at the onset of their attacks, when they were well nourished and even this acetone was present.

A peculiar feature is the suddeness of the onset in many cases. The patient may be feeling perfectly normal up to a definite hour, at which time he is seized with these distressing symptoms which soon reduce him to a condition of absolute prostration. It would seem that acetone is gradually elaborated up to a point of saturation, beyond which the body alkalis are no longer protective.

Another feature of the condition is its apparent epidemicity, as evidenced in the report of the first three patients. This is in accord with cases reported by other observers, where two or three of the same family and household have been stricken almost simultaneously. It almost forces one to the conclusion that this acidosis is infectious in origin, altho the mode of spread is obscure. The lack of respiratory symptoms in most of the cases we have observed leads us to absolve the sputum of blame in spreading the infection. On the other hand, the nausea, vomiting, and diarrhea so common in the condition in children point to the gastrointestinal tract as the seat of the trouble. If such is the case, it is quite likely that "food and fingers" play an important part in the transmission of the infection.

To say that the etiology of the acidosis is wrapt up in that of influenza would not help us to solve the problem, for we are not yet enlightened as to the latter's cause. We have religiously examined the urine for acetone in each influenza case we have seen, especially those with marked respiratory symptoms. The majority have yielded negative results. In two cases of influenzal pneumonia, one showed traces of acetone; the other showed none. Doubtless many of these cases have been regarded as cases of intestinal influenza. If this be true, why should the formation of acetone bodies be favored by an infection in one part of the body and not in another? Is it due to a different resistent power in the individual, depending upon his or her alkali reserve? The appearance of ketonuria can surely not be due to carbohydrate starvation, for in these cases, as in the periodic vomiting of children, the ketonuria may precede the attack of vomiting and consequent malnutrition.

In the present dim state of our knowledge of this symptom-complex we can do little better than speculate as to the cause of this heavy ketone formation. It is conceivable that a toxemia of infectious origin causes these patients temporarily to lose their power to burn sugar, a hypothesis that has been advanced also to explain the periodic vomiting of children. The proteins and fats are therefore called upon to furnish the caloric requirements of the body as in true carbohydrate starvation with the resultant acetone body formation.

Treatment of the condition is to be directed mainly along one line—that of intense and thoro alkalization. The patient should be isolated and kept in bed. It is often impossible to give medication by mouth on account of the severe emesis. We have endeavored to control this at the outset with bromides, or codeine and cerium oxalate. An initial purge of calomel can thus be given and retained and should be followed by the customary dose of salts. Large doses of bicarbonate of soda are given by mouth where possible. We have given as much as a gram every hour thruout the day. This is supplemented with small rectal injections of a solution of the alkali to be retained. In severe cases which resist these measures one should not stop short of intravenous infusions of sodium barcarbonate. The diet should be mainly fluid and contain sugar and starch. Thin gruels, rice, toast and wafers are allowed. the patients should be encouraged to drink much milk and water.

A TONSILLAR HEMOSTAT.

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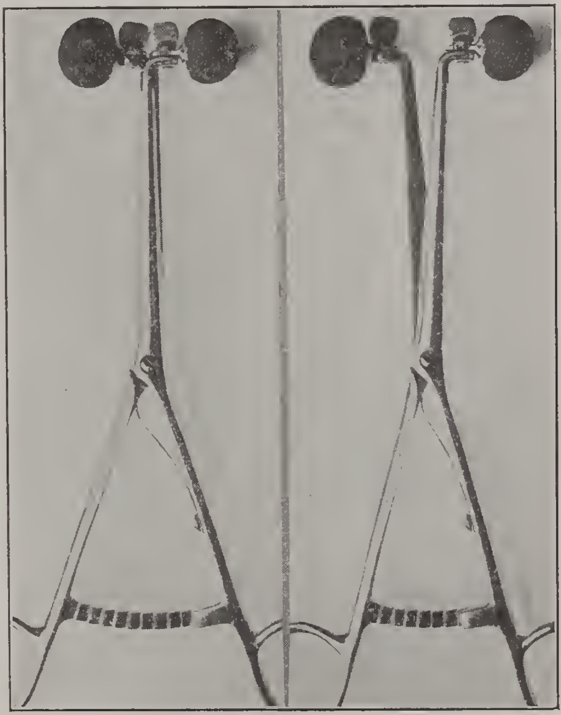
The profound need for an instrument adequate in controlling hemorrhage following tonsillectomy is obvious. I was doubly impressed with the fact in my own case, when it was necessary to have a tonsillectomy during the course of what was probably an hemotogenous infection of the kidney. The operation itself was cleverly performed but a severe hemorrhage followed and was difficult to check because of the hydremic state of my blood after one and one-half month's illness. Most of the ordinary methods for controlling hemorrhage were resorted to without avail and not until two sutures, one on one side and one on the other had been placed, bringing together the pillars, and until I was quite exsanguinated, was hemorrhage finally controlled. The resulting clots which filled the fossae previously occupied by tonsils became a foul-smelling, and excellent nidus for bacteria for some little time.

With this experience in mind, I devised an instrument, a picture of which accompanies this article, which while simple enough, has distinct advantages over other instruments on the market.

(1) It is easily placed in position, the knobs of hard rubber, about the size and shape of the average tonsil, slipped into the fossae remaining on either side after the tonsil hes been excised.

(2) It cannot be displaced by retching or coughing when properly adjusted, because the knobs rest snugly in the tonsillar fossae when the handles are approximated and locked (locking device like an ordinary hemostatic forceps); also because the knobs are jointed to the blades and by means of small thumb screws can be directed upward or downward to accurately conform to the line of the faucial wall.



(3) It can be used to check hemorrhage on both sides simultaneously. If desired, gauze can be wrapped over the knob and treated with some styptic.

(4) It does not grasp between its ends and make pressure upon the main vessels of the neck or upon the seventh cranial nerve with a transitory facial paralysis complicating its use, as does at times the commonly used hemostatic forceps which has one arm within and another without the mouth.

(5) The teeth do not interfere with its use when once inserted and the patient can feel at ease in closing the mouth upon it.

NORTHWEST MEDICINE
The Journal of the State Medical Associations of Oregon, Washington, Idaho and Utah.
Devoted to the Interests of the Medical Profession of the Pacific Northwest
Editorial Office, 1011-12 Cobb Building, Seattle, Wash.
JUNE, 1920.

EDITORIAL

BELIEF IN IMMORTALITY

For two thousand years belief in life after death has been the fundamental doctrine of the Christian religion. Confidence in the life hereafter has inspired countless men and women to meet the hour of dissolution with equanimity and happiness. The passionate longing of those left behind to obtain some positive assurance that their departed friends exist in life after death has been the chief inspiration and has provided the impetus for the development of modern spiritualism. The practice of spiritualism, however, is involved in such a maze of charlantry, deception and quackery that its followers are commonly looked upon as being of questionable mentality and easy dupes to gullibility. To such an extent have these frauds been developed that the average individual is inclined to express his total disbelief in any manifestation of communication with the departed.

Now appears Sir. Oliver Lodge, a man of tried and proven scientific attainments, whose opinion is regarded as authoritative in both hemispheres. He boldly proclaims his belief in immortality, and asserts that under favorable conditions one can communicate with the spirits of the departed. He asserts his personal experiences with communications of this nature without equivocation or doubt. He states that no man of judicial temperament can limit his belief to knowledge acquired only by the senses. In modern times too many unbelievable assertions have developed into proven facts to warrant one in even saying, "I do not believe it," or "it cannot be true." Altho Sir Oliver's claims of communication with the spirits of the dead seem in some respects incredible, yet one cannot but admit this may be true, in spite of the fact that some of our theologians claim that he is inspired by evil spirits, and that in his old age he has been imposed upon by cunning impostors. The attitude of open-mindedness is one which will appeal to the thoughtful individual, awaiting further proofs to demonstrate the validity of the claims of a man of science. Sir Oliver believes more wonders than are known to the present age will be demonstrated in the future, far exceeding the wonderful discoveries of the last fifty years, and the positive demonstration of life after death may be one of these.

IMPROVEMENT IN HOSPITAL SERVICE

Every state medical association in the United States has its part in the present universal movement for the betterment of hospital service. Each has its own committee which is studying the hospital situation in its state in cooperation with the Council on Medical Education of the American Medical Association. The Council has obtained, thru reports, correspondence and other methods, data relative to all hospitals in the country and each state committee has been supplied with the data relating to the institutions in its state. Thru its closer familiarity with the hospitals or by inspections the state committee is in excellent position to verify these data and to make a reliable report to its state association and to the Council.

For convenience and in order to secure uniformity of reports from the forty-eight committees regarding the relative efficiency of hospitals. blanks furnished by the Council call for a rating of all hospitals in classes A, B, and C, grouped also according to the special class of patients cared for. This rating is not for publication but will aid the Council in the preparation of a list of hospitals which are considered worthy of approval. These lists are subject to frequent revision, so that names of other hospitals can be included as soon as sufficient improvements are made to warrant their being approved. State committees are urged to promptly report to the Council any instances where such improvements have been made.

The purpose of the work is to aid the hospitals in providing for their patients the best possible service and in no way to injure those which are honestly endeavoring to provide such service. Toward this end every possible assistance will be given to individual hospitals by the Council or by the local state committee in establishing such changes as will make them worthy of approval.

Forty-two state committees have reported progress in connection with the latest survey and thirty-four have turned in reports regarding hospitals inspected and graded, which have more than half the entire bed capacity of all general hospitals in the country. Meanwhile this work of the Council is not conflicting with, or duplicating the splendid work being done by the American College of Surgeons, the Catholic Hospital Association, the American Hospital Association or other agencies. In fact the work of each agency is evidently complementing that of the others. At the New Orleans meeting, recently, the House of Delegates of the American Medical Association registered an intense interest in the improvement of hospital service and authorized the trustees to generously provide for that work. This work has been so intimately related to that of the Council on Medical Education that the name of this Council was changed to the "Council on Medical Education and Hospitals."

In brief, further enlargement of hospital work by the American Medical Association is assured and in this work each state is destined to have an important part. Toward this end each association is urged to make its hospital committee permanent and to retain on it those who will not only be active but who also can do the work in the most efficient and unbiased manner. Hospitals at present form the closest link between the medical profession and the public and the medical profession should do all it can to aid the hospitals to provide the very best service possible.

OUR A. M. A. TRUSTEE.

For the first time the Pacific coast representative on the Board of trustees of the American Medical Association has been selected from the Pacific Northwest. This section has been honored by the election of Dr. W. T. Williamson, of Portland, to fill this office. From time immemorial it has hitherto been filled by a representative from California. This result is the culmination of effort put forth on several occasions in the past to accomplish this purpose and the delegates from Washington, Idaho, Utah and Montana, under the leadership of Dr. J. A. Pettit, of Portland, are to be congratulated on the election of Dr. Williamson. No more able man could be chosen to represent the Pacific coast. His knowledge, training, eloquence and urbanity make him the ideal selection for this responsible office. Under his supervision the interests of the far west will be directed fairly and discretely. We extend to Dr. Williamson our congratulations and the hope that his term of office may be one of pleasure to himself and profit to the medical profession.

THE NEW ORLEANS MEETING

The seventy-first session of the A. M. A., which met in New Orleans April 26-30, had a large attendance. Except for a heavy rain on the first day, the weather was all that one could have expected. The visitors were shown the city on the first day which consisted of a trip thru the old French quarter, the boulevards and municipal buildings, the absinthe house and many of the old courtyards with their ornamental iron work. They are left just as they were many years ago. Most of the visitors leaned on the old marble slab at the absinthe house, where the old Frenchman had his absinthes given to him, and had dished out to them instead a cool bottle of bevo. One cannot but admire the palm trees which line the main thorofares and the immense amount of money that has been spent on the cemeteries, all the dead being put away above ground in beautiful marble vaults, contrary to the general belief that doctors always bury their mistakes. The commercial scientific exhibits surpassed any that the association has ever had. The Josephine Hutchinson Memorial Building was given over to these. Every hour during the afternoon a moving picture was shown, put on by one of the commercial exhibitors. These attracted a large number of visitors, as usually some scientific man demonstrated them who was fully conversant with the apparatus being shown.

On Tuesday, April 27, the meeting was called to order by President Alexander Lambert, of New York. After an address by the Governor-Elect of the state, there was an address by Dr. Wm. C. Braisted, President-Elect. His address while lengthy was full of good sound progressive ideas. Some stress was laid upon the standardization of school books for children and also impressing the fact that the doctor should mean more to the community in which he lives than he has been up to the present time. The old idea that a doctor who enters any political field cannot be a scientific man should not now obtain, but it should be his duty to stand up and see that the best men in his community are elected to run the government and not merely pass these things by with a haughty air as has been done in the past. One of the most notable social events was the Rex ball given to the association. The costumes were very costly and the girls very pretty.

The sections on surgery, general and abdominal, practice of medicine, obstetrics, gynecology and abdominal surgery were the three most popular sections. Dr. Dean D. Lewis, as chairman of the section on surgery, was most strict in his time limit of papers which made him very popular. Dr. Arthur Dean Bevan's paper on surgery of cancer of the large intestine was followed by one on operative treatment of carcinoma of the rectum by Dr. G. W. Crile, which caused much general discussion. Dr. Wm. H. Stewart's paper on "Roentgenologic Experience with Pneumoperitoneum" also caused much discussion. The section in the practice of medicine was opened by a paper by Dr. Henry S. Plummer on "The Clinical Interpretations of Basal Metabolic Rate Estimations." There was a very lengthy discussion of this comparatively new subject. Following this paper Dr. Frank Billings, of Chicago, addressed the meeting and nominated Sir. Humphrey S. Rolleston, of London, as Honorary member in the Association. His address, altho brief, was applauded vigorously.

JUNE MEDICAL MEETINGS

This is a busy month for medical meetings for the Pacific Northwest. Last month we published notices of the Portland meetings of the Oregon State Association and the University of Oregon Alumni Associaion, as well as that of the Canadian Medical Association at Vancouver. The two former will have passed before this issue reaches our readers. The Canadian meeting will be held June 22-25. The description of the program and all other features indicate that it will be well worth the time of all who can arrange to attend this great meeting. The Idaho State Association also holds its annual meeting this month, meeting at Coeur d'Alene on the 10th and 11th. We regret that we have not received the program and other information regarding this meeting so that it might have been published in advance of the date of assembling. We know from personal experience that the Idaho meetings are profitable gatherings and all who attend feel repaid for so doing.

LECTURE COURSES IN SEATTLE

The fourth course of graduate medical lectures. conducted by the Extension Service of the University of Washington, will be given in Seattle during the week of June 28. The lecturers will be Dr. Henry A. Christian, of Harvard Medical School, in medicine and Dr. Barton C. Hirst, of University of Pennsylvania Medical School, in surgery. Clinics and demonstrations will be arranged as in previous years and a banquet and other entertainment will be arranged for visiting physicians. Programs, tickets and full particulars may be obtained from the University Extension Service at the University of Washington, as indicated by the advertisement on another page.

During August a course on ear, nose and throat will be given in Seattle by Drs. Albert H. Andrews and William S. Reeder of Chicago, mention of which appears in their advertisement.

Medical Service Department. The Cooperative Medical Advertising Bureau, of 535 N. Dearborn Street, Chicago, maintains a Service Department to answer inquiries from physicians about pharmaceutical and surgical instruments, and other manufactured products such as objects of art, clothing or automobiles which may be needed in the home, office, sanitorium or hospital. Our readers are invited to make use of this service which is absolutely free. The Cooperative Bureau is equipped with catalogues and price lists of manufactures and can supply any needed information by return mail.

MEDICAL NOTES

OREGON

Candidates Before the Society. The Portland City and County Medical Society proposes to know the views of candidates for office regarding medical and public health matters before election time. A questionnaire as to their attitude toward medical legislation brought answers from thirty-five aspirants for office. Later a large number attended a meeting of the society, where they were quizzed as to what they would do if elected. Most of them promised to follow the lead of medical men in obtaining medical legislation. The candidate for Congress asserted he favored a secretary of public health in the cabinet.

In Memory of Dr. Mackenzie. At a meeting of 300 Portland physicians held in memory of Dr. Mackenzie, resolutions were passed commending his wisdom and foresight in working for the upbuilding of a great medical center in connection with the University Medical School and pledging their aid and influence in continuing this work. Review of his life activities were given by Drs. W. T. Williamson, R. B. Dillehunt and Mr. W. D. Wheelwright.

Southern Oregon Medical Association held its annual meeting at Roseburg May 12-13. The following officers were elected for the ensuing year: President, L. O. Clement, Grants Pass; vice-president, E. B. Pickel, Medford; Secretary and treasurer, A. C. Seely, Roseburg; board of censors, W. H. Flanders, Grants Pass; house of delegates, R. W. Stearns, Medford. The next annual meeting will be held at Grants Pass.

Hospital for Service Men. A centralization hospital for ex-service men is now being aggitated for

Eugene. It is believed that the lower end of Willamette valley needs such an institution to serve the soldiers of the late war in that part of the state who need treatment and recuperation.

Hospital to be Enlarged. Plans for the construcstruction of an addition to Morningside Hospital at Portland to cost $25,000 have been made by Dr. H. W. Coe. This new building will care for nervous patients. The hospital treats mental and nervous patients under the U. S. Public Health Service.

Survey of Health Activities. Dr. Louis Hough, Major in U. S. Public Health Service, visited Portland and other cities last month, making surveys of health activities in fifteen western states. His special campaign has to do with the campaign against venereal diseases.

WASHINGTON

New Hospital Opened. A new hospital was opened for reception of patients in Seattle last month, St. Luke's, at 16th Ave, and East John St. It is three stories and basement, of brick construction, with capacity for 50 patients. It was built by Dr. J. W. Wilkins, at a cost of $80,000 and contains the latest features of a modern hospital. It is open for the use of the profession and helps to fill an urgent need of added hospital facilities.

Plans for New Hospital. The Sisters of Providence are planning to build a new hospital at Everett, at Nassau and Pacific Ave. It will cost $350,000, will accommodate 125 patients and will be provided with most modern conveniences. Work will begin within two months.

School to be Made a Hospital. In July the Cushman Indian school at Tacoma will be discontinued. The bureau of Indian affairs has placed the buildings at the disposal of the U. S. public health service. It is proposed to convert them into a rehabilitation hospital for ex-service men, as well as for the navy and merchant marine service.

New Law for Drug Addicts. Dr. G. H. T. Sparling, county health officer for King county, has recommended to Seattle officials the passage of a law, making drug addition a notifiable disease, on the ground that the drug habit is communicable by psychic effect and therefore dangerous to public health.

Seattle for Conventions. At their recent meeting at Atlanta, Seattle was selected for the 1922 convention of the three following national nursing associations: American Nurses Association, National League of Nursing Education and Association for Public Health Nursing.

The Antis again Active. Last month a meeting was held in Seattle of people from different cities interested in the proposal to stop enforced supervision of public school children. They formed "The Public School Protective League of Washington." Now watch for fire works.

Unionization of Attendants. The Central Labor Council, of Tacoma, has called for the unionization of the attendants at the Western Washington Hospital for the Insane, at Steilacoom. They propose to limit the attendants to an eight hour day instead of longer hours now in vogue.

State Organization of Women Physicians. The Medical Women's Club, of Seattle, has initiated a movement to form a state society of women physicians. The object is to bring the women physicians of the state into closer relations so that they may become better acquainted with each other's work.

Appointed City Commissioner. The city commissioners of Spokane have appointed city health officer, Dr. Ralph Hendricks, to fill out the unexpired term of the late commissioner J. H. Tilsey. The appointment was made for merit and ability, with no reference to politics.

County Health Officer. Dr. W. W. Day, of Dayton, has been appointed county health officer to succeed his father, Dr. C. H. Day, who has retired from practice of 34 years duration.

Doctor's Home Burned. On the last day of April the residence of Dr. Messner, of Dayton, was completely destroyed by fire of unknown origin. The house and its entire contents were burned.

New Health Officer. Dr. F. L. Wood has been appointed health officer of Lynden by the mayor of that city.

Superintendent of Sanitarium. Dr. A. D. Schlotthauer, of Toledo, has been appointed superintendent of the Walla Walla sanitarium. His practice in Toledo has been taken by Dr. Leslie Swift, of California.

Dr. W. A. Pratt, of Walla Walla, has returned for practice. He was in army service at several camps in this country, as well as in France and Germany.

Dr. L. J. McDevitt, Past Assistant Surgeon of U. S. Public Health Service, stationed at Port Townsend for the past year, has been transferred to Manilla.

Dr. A. L. Shelton, American missionary from Thibet, was in Seattle last month. He gave many interesting experiences which occurred on "the roof of the world," including capture by Chinese bandits.

Dr. A. E. Henby, of Seattle, has returned home for practice. He entered army service when the U. S. went into the war and was recently discharged.

Dr. A. W. Schultz, formerly of Tacoma, has located at Raymond. He was assistant surgeon for the N. P. railway and left this work to enlist in army service.

New Health Officials. Dr. W. B. Abbott, of Yakima, has been appointed sanitary officer of the lower valley with headquarters at Sunnyside. His position of deputy county health officer has been filled by the appointment of Dr. J. C. Ellyson.

Double Official. Dr. H. H. Smith, health officer of Yakima, has also been appointed to the same office by the town council of Mabton.

Dr. William Dietz has located for practice at Oakville, having moved from Spokane.

Dr. J. C. Hendricks has moved from Bremerton to Wenatchee, where he will locate for practice.

Medical Wedding. Dr. Robert D. Forbes, of Seattle, was married to Mrs. Mary R. Bradley, of Winnipeg, at Seattle, May 7.

OBITUARIES

Dr. W. R. Todd, of Seattle, died April 26, aged 90. He was born in Newcastle, England and was educated at Freiberg, Germany. He attended Rush Medical College and practiced several years in Chicago. He was county physician in Eureka, Nev. and Georgetown, Col. He practiced in Salt Lake City, San Francisco and Butte before coming to Ballard, Seattle, nineteen years ago. He spoke five languages and was an accomplished violinist.

Dr. G. L. Loope, of Seattle, died May 11, aged 73. He was a civil war veteran and formerly a resident of Bessemer, Ill. While a member of the Illinois state board of health he had charge of the construction of the state asylum for the insane. He retired from practice and came to Seattle twelve years ago. After the entrance of U. S. into the war he opened an office at Kirkland. Later he served with the shipping board in Alaska.

Dr. C. M. Holcomb, of Seattle, died May 3, following an operation for gall-stones, aged 60. He was a graduate of Jefferson Medical College. For many years he practiced at Winfield, Kan. He came to Seattle in 1903. He was an able practitioner, well known in medical circles and had a wide acquaintance.

CORRESPONDENCE

JAPANESE SURGERY

Yokohama, Japan, March 19, 1920.

To the Editor:

I have mailed you two Japan papers, one the Japan Advertiser, printed in English, and a Japanese daily, the Asahi, in both of which is printed an interview of myself by the English reporter. I went out to the Toyko Imperial University Medical School, where Dr. Sato is the surgeon, and watched his work and lecture. I was received with all the courtesy that the Japanese know so well how to exercise. The Japanese are so pleased to be recognized in any way by Americans that my visit was considered by some importance, hence the interview. The funny thing about it to me was being put in the Japanese paper, the translation and trouble the paper went to.

I am sending the papers to you, thinking you might like to know how the Japanese people treat women physicians, even though women are not admitted to the Medical school.

I came over here in January as physician to an eastern party of four, who are returning the last of April. We have had a most delightful time. I have studied health conditions pretty closely, and am filled with wonder at the high standard the people manage to maintain under the crowded conditions of living.

Mae Cardwell, M. D.

REPORTS OF SOCIETY MEETINGS

KING COUNTY MEDICAL SOCIETY

Pres., H. D. Dudley, M.D.; Secy, H. J. Knott, M.D.

The regular meeting of the King County Medical Society was held in the Masonic Club Rooms, Seattle, Wash., May 3, 1920 at 8:10 P. M. There were sixty-four present. The minutes of the previous meeting were read and approved.

The meeting was given over to a Symposium on Gastrointestinal Diseases.

Papers.

Diagnosis of Gastrointestinal Disturbances. By Dr. P. V. von Phul. Dr. Stutsman discussed the paper.

Approaching the Gastrointestinal Patient. By Dr. H. J. Davidson. Dr. G. C. Miller opened the discussion of this paper.

The Laboratory Aspects-of Diagnosis. By Dr. M. M. Null. Dr. A. R. Robertson opened the discussion of the paper.

Treatment of Gastrointestinal Disturbances. By Dr. G. A. Dowling.

The Relation of Syphilis to Gastrointestinal Conditions. By M. N. Garhart. Dr. J. M. Blackford opened the general discussion of the papers, and Dr. P. W. Willis closed the discussion.

Drs. D. H. Polk, J. C. Clarke, F. J. Clancy and E. L. Smythe were elected to membership.

The second regular meeting of the society was held May 17, at 8:15 p. m. Minutes of the previous meeting were approved as read.

Papers

The Use of X-Ray in Diagnosis and Treatment of Fractures. By Dr. F. S. Bourns.

Surgery of Compound Fractures. By Dr. H. E. Allen.

Dr. Buckner discussed this paper with special remarks on the application of the Thomas splint.

Newer Methods in Treatment of Simple Fractures. By Dr. H. J. Wycoff.

The general discussion of the papers of the evening was opened by Dr. Willis.

Dr. Mahoney spoke on "Fracture Massage in Treatment of Simple Fracture."

Drs. McLoughlin, Bourns, Allen and Wycoff closed the discussion on the various papers.

Dr. Willis spoke on the prospects of the University Extension Course.

WHITMAN COUNTY MEDICAL SOCIETY

Pres., F. A. Bryant, M.D.; Secy., M. J. Beistel, M.D.

A meeting of Whitman County Medical Society was held at Pullman, Wash., April 22. Fifty-five were in attendance. Three charter members were present, who helped form the society in 1897—Drs. R. C. Coffey, of Portland; A. E. Stuht, of Colfax; J. L. Harris, of Colton.

Papers.

Skin Grafting. By Dr. Carl Weisman, of Spokane. Methods and technic were explained in detail and results outlined. The paper was discussed by Drs.

Burg, of Uniontown; Harris, of Colton; Else and Coffey, of Portland; Corkery and Cunningham, of Spokane.

Hodgkins Disease. By Dr. J. L. Gilleland, of Pullman. He gave histories of two cases with blood pictures. D. F. Epplen, of Spokane, described pathology and treatment. The paper was discussed by Drs. Else, of Portland; and Patton, of Spokane.

Acute Inflammatory Diseases of the Abdomen. By Dr. R. C. Coffey, of Portland. He described signs, symptoms and treatment, illustrated by numerous charts and drawings. The paper was discussed by Drs. Cunningham, Epplen, Else, St. Sure and Corkery.

Sleeping Sickness. By Dr. G. E. Price, of Spokane. He mentioned that little is known of its cause and gave outline of symptoms and treatment. The paper was discussed by Drs. Patton and Else.

Goiter and its Relation to Basal Metabolism. By Dr. J. E. Else, of Portland. He explained the relation of goiter to metabolism, showing that the more poison produced by the goiter, the greater oxidation required by the body. The paper was discussed by Dr. J. W. Kalkus, pathologist at the State College.

Pyorrhea. By Dr. G. A. Chapman, dentist of Colfax. He discussed symptoms and treatment, illustrated by lantern slides.

This was considered the most successful meeting in the history of the Society. In the evening a banquet was given at the Palace Hotel.

PUGET SOUND ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

Pres., W. G. Cameron, M.D., Secy., A. F. Mattice M.D.

The monthly meeting of the Academy was held April 26, 1920, at Seattle, Wash., with Dr. Geo. Swift in the chair. Fourteen members and six visitors were in attendance. After dinner at the Hotel Savoy the meeting was held at the Seattle Eye, Ear, Nose and Throat Infirmary.

PAPER

The Smith Operation for Cataract. By Dr. Bell. The writer had just returned from India, where he had observed the work of Major Smith. He mentioned the conditions in that country and described the technic of the Smith operation, without expressing his views regarding it.

In discussion, Dr. Scott-Moncrieff, of Victoria, was rather pessimistic as to the operation, having observed it while stationed in India. If the lens does not come out easily with the Indian operation he uses the ordinary technic. He has seen many bad results from the operation, and thinks statistics from India are not as good as published.

Dr. Bentley, who has visited Smith's clinic, prefers the ordinary technic, and thinks the Indians much better suited than the whites for the Smith operation. He thinks Smith would have better pupils and more regular coloboma if the iris forceps are introduced thoroughly into the anterior chamber to seize the iris.

Dr. Perry prefers extraction in the capsule and to finish by the ordinary method if necessary. He does not like conjunctival flaps, and prefers a large incision.

Dr. Cooke is more worried about postoperative complications than methods of incision.

Dr. Swift said the choosing of an operation was like picking a wife; take one you can get along with. He does not favor flaps and has most trouble with complications.

CLINICAL CASES

Dr. Wanamaker presented a woman of 30 with headache and cold in the head, who had been hoarse ever since she could remember. There was slight congestion in region of turbinates and sinuses were clear. There was a membrane-like web between the cords, beginning at the anterior commissure, and extending laterally almost half the length of the cord. This is a congenital defect, only about 20 cases having been reported. Case 2 was a baby of 7 weeks with fever and swelling of the right cheek as well as lower lid which was opened ten days ago. Pus filled the right nostril and came from fistulae in the alveolar process. An opening was made in the right antrum and culture showed staphylococcus. This is his youngest patient with antrum empyema. Cases have been reported from three weeks old upward. Some authors consider it osteomyelitis, others a tuberculous disease of the bone. This baby may have been injured at birth.

Dr. Bell asked for advice about a patient with ear pollypi. Several advised radical mastoid operation. Dr. Perry treats mastoid with Dakin solution and by constant drainage avoids frequent dressings.

Dr. Swift showed a patient in whose eye a piece of saw tooth had lodged. A month later he could not recognize it with the ophthalmoscope, but the x-ray plate localized it in the back of the eye. It could not be removed with the giant magnet. A second attempt thru a scleral puncture could not remove it. In the absence of inflammation it will be left in the eye.

Dr. Washburn exhibited an old man with dislocated calcareous lens and asked advice as to treatment. Dr. Mattice showed a girl of 9 whose sight had suddenly dropped to .21 after whooping cough. Examination showed a patch of retinal degeneration in each macula. Dr. Cooke suggested syphilis, while Dr. Grey mentioned embolus, and Dr. Bentley suggested an electric flash as the cause.

The Canadians present expressed their pleasure at the meeting, and urged the members to attend the meeting of the Canadian Medical Association.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

Principles and Practice of Physical Diagnosis. By John C. DaCosta, Jr., M.D., Ex-Associate Professor of Medicine, Jefferson Medical College, Philadelphia. Fourth Edition. Thoroughly revised. Octavo of 602 pages with 225 original illustrations. Philadelphia and London. W. B. Saunders Company, 1919. Cloth $4.75 net.

DaCosta needs no introduction. In this edition there is new matter on gas edema, gas and influenzal pneumonia, hilus tuberculosis, the effort syndrome, the functional capacity of the heart, aviator's heart, and sinoauricular block. The work treats of the most important subjects in medicine and is correspondingly valuable. The method of arrangement of subjects is that according to organs. The method of taking up subjects according to etiology applied to organs, as in relation to the heart, possesses value. For instance, considering heart disease under its six divisions, streptococcic, goiter, leutic, nephritic, arteriosclerotic, and mixed causation (including congenital), aids one much in practice, as the age at once suggests the kind of heart, and leads one to probe the cause and to rationally apply the treatment.

In regard to bronchopneumonia the writer might have noted the common site of lesions. In the recent bronchopenumonias the initial site, in over 90 per cent. of cases, was under the angle of either scapula. One could run thru influenza wards and rapidly pick out pneumonias in cases with temperature over 103° by hearing in this region the accentuated voice and crepitant râles, these being the early signs. In enumerating signs of pleural effusion the author omitted the peculiar intense nasal note that often strikes the ear when testing for vocal resonance. It occurs directly above the effusion and may mislead by suggesting pneumonia. It is due to compression of the lung and is seen in large empyemas. It is quite characteristic of such. Grocco's sign must not be too greatly relied upon as the reviewer has seen it without any effusion. In speaking of mediastinal lymphadenitis the author mentions the fact that whooping cough may be attributable to pressure of enlarged lymph glands in the posterior mediastinum. This certainly explains the peculiar character of the cough which is also seen in other cases of mediastinal swellings. Such works can not be too constantly studied, as one readily forgets many of the finer points in diagnosis which is the alpha and omega of medicine and surgery. DaCosta's is a standard work on the subject and in this edition it has been brought up-to-date, especially in regard to matters illuminated by the colossal experience of the war. WINSLOW.

Surgical Shock and the Shockless Operation. By George W. Crile, M.D., Professor of Surgery, School of Medicine, Western Reserve University, Cleveland; and William E. Lower, M.D., Associate Professor of Genito-Urinary Surgery School of Medicine, Western Reserve University. Second Edition of "Anoci-Association" thoroughly Revised and Rewritten. Octavo of 272 pages with 75 illustrations. Philadelphia and London; W. B. Saunders Co., 1920. Cloth, $5.00 net.

The first edition of this work was written about six years ago, and was intended as an exposition of the principles upon which the doctrine of the anoci-association is based and their practical application. This second edition follows an extended experience in civilian and military practice, where corroborative evidence of the soundness of the fundamental principle has been varified. Shock has many causes and many manifestations, and in the mechanism of death from shock there is no factor that distinguishes that death from death from many other causes. Exclusion of both traumatic and emotional stimuli is the great preventive in surgical operations. Morphine, novocaine injections and gas and oxygen anesthesias are some of the means of doing this. Sleep is the great restorative. In the absence of cyanosis morphine will aid in its production. Fluids, alkalies and rest are important aids. Drugs like alcohol, camphor, strychnine and nitroglycerine are provocative rather than helpful in its treatment. The many factors in causation and pathology are elaborately analyzed and conclusions of practical value adduced. The "don'ts" after chapters descriptive of operations treated regionally are valuable and excellently selected. The well known value of this work makes the second edition most welcome as a rewriting and augmentation of the first. FORBES.

Diseases of the Chest and the Principles of Physical Diagnosis. By George W. Norris, M.D., Assistant Professor of Medicine in the University of Pennsylvania, and Henry R. M. Landis, M.D., Assistant Professor of Medicine in the University of Pennsylvania, with a chapter on Electrocardiograph in Heart Disease, by Edward Krumbhaar, Ph. D. M.D., Assistant Professor of Research Medicine in the University of Pennsylvania. Second Edition, Thoroughly Revised. Octavo Volume of 844 pages with 433 illustrations. Philadelphia and London; W. B. Saunders Company, 1920. Cloth $8.00 net.

New matter in this volume includes spirochaetal bronchitis, influenza, streptoccus empyema, chronic inflammation of the lungs of uncertain etiology, calcification of the lungs, pneumopericardium, etc. The work has most admirable photographic plates of frozen sections of the chest which add greatly to its value. The matter has been brought well up-to-date. If there is any failing it is failure in devoting space to differential diagnosis. Thus in regard to tachycardia. The differentiation into the forms representing simple tachycardia, irritable heart and hyperthyroidism is not clearly made, and the inference is that tachycardia in the presence of goiter signifies hyperthyroidism, altho recently only seven cases of such cases proved to be hyperthyroidism by the more recent tests of thyroid feeding, injection of atropine and adrenalin, determination of metabolic rate, etc. Under functional murmurs the means of differential diagnosis are not clearly pointed out, and the common cardiorespiratory murmur is not noted. There is to be found a good description of conditions but the differential diagnosis is omitted as for instance in intrathoracic goiter. The book as a whole is an excellent condensed treatise on diseases of the chest and the physical signs are described in great detail. The etiology, pathology, diagnostic

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signs and symptoms are thoroly worked out with diagnosis, but the differential diagnosis is too lightly touched upon and the matter of treatment is not considered at all.

WINSLOW

Manual of Surgery for Students and Practitioners. By Albert Carless, C. B. E., M. B., M. S. Lond., F. R. C. S. Cloth 1570 pp. Tenth Edition, rewritten and enlarged, illustrated $8.00. Wm. Wood and Company, New York, 1920.

This manual has been a favorite for twenty-one years, having taken its place as a standard textbook of surgery at its first edition. This tenth edition, the first for five years, is intended to bring the work up to date, for during that interval the weary years of war produced much of value in civilian practice. The book gives special evidence of this effort in the chapter on fractures. Here a few descriptions are given of the Thomas splint, Sinclair skate, Hey Groves cradle splint, various forms of extension apparatus for fractures of the upper limb; as well as nail and caliper extensions for fracture of the femur. Formulae for glue extensions with numerous instructions for use are given. The book contains many valuable x-ray photographs and many new illustrations.

FORBES.

Education in War and Peace. By Stewart Paton, M.D. Lecturer in Neurology, Princeton University, etc. Cloth 106 Pp. $1.50. Paul B. Hoeber, New York. 1920.

This publication puts into a book cover three reprints. The first emphasizes the impossibility of dissociating mind and body, notes the present tendency towards nervous imbalance, and the opportunity for service thru the proper study of human behavior. The second indicates the lack in the system of education that gives much attention to many subjects but has been careless as to the significance of preparation for life and living. The third is the address delivered at the opening of the Henry Phipps Psychiatric Clinics, which in general terms indicates the purpose of such an institution and its significance.

GULICK.

Personal and Racial Betterment. By Knight Dunlap, Professor of Experimental Psychology in The Johns Hopkins University. 95 pp. Price $1.00. C. V. Mosby Co., St. Louis, 1920.

The author discusses the significance of beauty in Part I, presenting the general negative characters and the detailed characters of beauty, under the headings of stature, bodily proportions, the features, hair, fat, complexion, muscular tonicity and poise. Herein is described what constitutes beauty in women. Part II is devoted to the conservation of beauty. He gives the practical steps in conservation, discusses incest and inbreeding, improvement in sexual selection and the selection of male parents. He concludes that the conservation of beauty is the problem of the present day and of all time. This little book is a very entertaining discussion of a subject of personal interest to every individual.

SMITH.

The Surgical Clinics of Chicago. February, 1920. Vol. IV, No. 1. 83 Illustrations. Published Bimonthly, W. B. Saunders Co., Philadelphia and London.

In this number Andrews describes an unusual gall-bladder case in which a hard mass extended from liver to pelvis, without tenderness. It proved to be an enormous gall-bladder filled with stones. He warns against mistaking a stone in the common duct without pain, but with emaciation and marasmus, for cancer. Such cases often die without relief, owing to this erroneous diagnosis, because of deep jaundice and increasing loss of weight and strength. The reviewer may add that there is another type of case with painless jaundice, emaciation and gradual failure, with tumor, which is regarded as cancer of the head of the pancreas but may be chronic pancreatitis with compression of the common duct, and capable of relief by operation. All such cases should have the benefit of exploration after the most careful study only proves that some uncertainty in diagnosis is inescapable.

Gatewood demonstrates most clearly the treatment of stricture of the esophagus and Kreuscher exhibits a case of cancer of the lower end of the esophagus with treatment by gastrostomy followed by radium. Strauss gives a very instructive lecture on pyloric stenosis (congenital), with exact rule for determining the indication for operation according to the amount of 4-hour barium residue in the stomach seen by fluoroscopy.

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ORIGINAL CONTRIBUTIONS

DISEASES OF ETHMOIDAL AND SPHENOIDAL SINUSES.*

J. H. HARTER, M. D. SEATTLE, WASH.

SURGICAL AND APPLIED ANATOMY.

A. *Ethmoidal Labrynth.* The ethmoidal labrynth proper extends anteriorally just anterior to the anterior end of middle turbinate (aggar nasi cell), laterally to the orbit (os planum), posteriorally to the floor of the anterior cranial fossa. As a rule the cells in anterior portion are small and in posterior portion large.

The anterior and posterior ethmoidal cells drain into the middle and superior meati respectively by several ostia. Drainage is frequently from one cell into another so that, if badly infected, adequate drainage is rare.

The cells superiorally extend higher than the cribriform plate and are always lateral to this. Therefore, in radical ethmoidal exenteration a small portion of superior inner wall of ethmoidal labrynth should be left standing until all cells have been removed. This is then removed as a final step. The Mosher operation leaves the middle turbinate intact as a guide to the location of the ethmodial cells. This has not been found convient in the author's hands.

The lateral boundary (os planum) is quite strong and firm except in two areas; (1) anteriorally, where the os planum joins the lachrymal bone and the orbital process of superior maxilla, where perforation into the orbit is very easy; (2) posterolaterally, where the wall is thin and perforation into anterior cranial fossa may occur from only slight pressure, as from a cotton tipped applicator. Not infrequently some ethmoidal cells extend laterally between the floor of the anterior cranial fossa and the roof of the orbit. These cells, if present, are inaccessible to surgical removal. However, if such cells remain after usual ethmoidal exenteration, any secreting ostium is easily observed. This can be entered by a cotton wound applicator and treatment applied, such as weak solution of silver nitrate and cure of these cells thereby effected. The superior posterolateral portion of the ethmoid may or may not form the lateral wall of the optic canal.

Under cover of the anterior end of the middle turbinate, between the bulla ethmoidalis posteriorally and the processus uncinatus anteriorally, the hiatus semilunaris leads up to the outlet of frontal sinus via the ethmoidal cells just posterior to the nasal process of superior maxilla. These ethmoidal cells are of great importance, since obstruction to drainage from frontal sinus usually occurs because of abnormal position or size of these cells. Therefore, if an operation is indicated upon the anterior ethmoidal cells it is quite important, even as a prophylactic measure against frontal sinusitis, that these cells be removed thoroly. If the patient previously has had any frontal sinus disease, then the removal of these cells becomes doubly important.

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*Read before Puget Sound Academy of Ophthalmology and Otho-Laryngology, Seattle, Wash., March 22, 1920.

The blood supply is by the anterior and posterior ethmoidal arteries (branches of the ophthalmic) and the sphenopalatine artery (the terminal branch of the internal maxillary). The anterior and posterior ethmoidal arteries leave the ophthalmic within the orbit, pass thru the anterior ethmoidal and posterior ethmoidal foramina respectively, enter the cranial cavity and passing under the dura enter the nose thru the lamina cribrosa, supplying the ethmoidal labrynth proper. The posterior ethmoidal artery is much the larger. The sphenopalatine artery passes from the pterygopalatine fossa thru the sphenopalatine foramen into the nose, terminating in the posterior nasal artery to mucosa of turbinates and meati, and posterior septal artery to septum. Hemorrhage from these arteries during operation is usually slight, but may be quite severe. The emergence of the anterior and posterior ethmoidal arteries and veins from the cranial cavity leaves after operation the possibility of retrograde infection of these vasa and secondary meningeal involvement.

The sensory nerves to ethmoid and sphenoid enter the nose in two locations. (1) The several branches of the sphenopalatine ganglion which supply all but the anterior portion of this area. This ganglion is situated in the sphenomaxillary fossa which is about 0.3 cm. posterior to the posterior tip of the middle turbinate and from 0.1 to 0.3 cm. from the nasal mucosa. (2) The nasal nerve, a branch of the first division of the Fifth cranial nerve which reaches the nasal fossa thru a foramen at the side of the crista galli, runs down on the lateral wall of the nose, supplying the anterior portion. The practical bearing is that these nerves may be anesthetized at their two points of entrance into the nose, thus giving a complete anesthesia of the ethmosphenoidal region. This method is used by Dr. Greenfield Sluder and is described in detail in his work on nasal ganglion neuroses.

The ethmoidal labrynth as such is present in homo at birth. It is found only in man and in the anthrapoid apes.

B. *The Sphenoidal Sinus.* The anatomy of the sphenoidal sinuses is an extremely variable quantity. In the typical case the body of the sphenoid is uniformly hollowed out by the two sphenoidal sinuses which are fairly equal and are separated from each other by a septum which may be considered a continuation of the septum nasi. This septum anteriorally is usually in about the midline but as it extends posteriorally it has a tendency to deviate laterally, thus making one sinus much larger than the other. The average capacity of one sphenoidal sinus is about 5 to 6 cc. It is not uncommon[16] to find the sphenoidal sinus small and placed in the anterior inferior portion of the body of the sphenoid with a large posterior ethmoidal cell above it. Neither is it uncommon to find the two sinuses extending beyond the body of the sphenoid into the lesser or greater wings, into the pterygoid process or to the dorsum sellae. Each sphenoidal sinus connects with the corresponding nasal cavity by an ostium which is not far from the nasal septum and usually in the upper third of the anterior sphenoidal wall.

Considering next the bony walls of the sphenoidal sinus: The anterior wall (sphenoidal face) is very thin in the upper portion (paper thickness), gradually thickening as it descends until in the lowest anterior portion it is from 2 to 6 mm. The slope of this face is downward and backward. In the disarticulated specimen a large portion of this wall is missing, as this portion of the anterior wall is formed by the posterior walls of the last posterior ethmoidal cells which close all the deficiency in the anterior sphenoidal wall except the ostium. These cells as they join the sphenoidal face make with it an angle with apex outward. The space within this angle is known as the recessus sphenoethmoidalis and, the deeper this is, the farther from the nasal septum will be the ostium sphenoidale. That part of the sphenoidal face that joins the posterior ethmoidal cells is known as the pars ethmoidalis; the rest is the pars nasalis. The superior and posterior bony walls are quite thick, 1 to 3 mm., and the inferior wall is very thick, usually 3 to 8 mm. The lateral wall is thin, often of egg shell thickness and is the wall most to be avoided in any surgical procedure.

Regarding the important structures adjacent to the bony walls of the sphenoidal sinus: Of the anterior wall this has been described. The inferior wall, which forms the vault of the epipharynx, is in relation to no important structure except the sphenoidal branch of the sphenopalatine artery, and the vidian nerve which course beneath its lateral portion. The superior, posterior and lateral walls are in relation to the dura mater, within the layers of which are found many important structures. The superior wall in the anterolateral portion is usually in relation to the optic canal. In fact,[16] this portion of the optic canal is always in relation to the sphenoidal sinus or a posterior ethmoidal cell. The posterior wall is in relation with the pituitary body and the coronary sinuses. The lateral wall is in contact with the cavernous sinus, within which are found the carotid artery and Sixth cranial nerve, and in whose upper and lateral walls are found the Third, Fourth, and first, second and third divisions of the Fifth cranial nerves. These relations differ[16] with the differing conformations of sphenoid bone and cavernous sinus but any of these nerves except the Sixth may be in contact with lateral wall of sphenoidal sinus and, if the latter extend anteriorally into the lesser wing or posteriorally to the dorsum sellae, its wall may then be in contact with the Sixth nerve.

There are three bony canals which are in contact with the walls of the sphenoidal sinus: (1) optic canal (vida supra), (2) foramen rotundum, transmitting the 2nd division of Fifth nerve in contact with lower lateral wall, and (3) the vidian canal, transmitting the vidian nerve and in contact with the lateral portion of inferior wall.

The anatomy[11 16] of the vidian nerve and the relations of this nerve to the sphenoidal sinus should be kept clearly in mind. This nerve takes origin in the middle lacerated foramen, being formed by the union of the great superficial petrosal and the great deep petrosal nerves. The former arises from the facial nerve in the facial canal, emerging from the hiatus fallopii to reach the middle lacerated foramen. This nerve is the motor root of the sphenopalatine or nasal ganglion. The great deep petrosal nerve is a branch of the carotid plexus and forms the sympathetic root of the nasal ganglion. The vidian nerve thus formed passes immediately into the vidian canal which is in contact wth lateral portion of floor of sphenoidal sinus. Emerging from this canal, it enters the sphenomaxillary fossae to join the nasal ganglion. Branches of the second division of Fifth nerve constitute the sensory root of this ganglion. This rather extensive intercommunication between the Fifth nerve and the two constitutents of the vidian help to explain some of the localized aches and neuralgias encountered in diseases of the sphenoidal sinus.

The blood supply of the sphenoidal sinus is scant and is derived from branches of the sphenopalatine artery. Some of the veins send communicating branches to the cavernous and coronary sinuses.

The nerve supply is by branches from the sphenopalatine ganglion.

The sphenoidal sinus[10] in homo may be present at birth but usually develops at age of 3 to 5 years. In the erect posture the ostium is almost at top of the sinus but in an animal that spends a large part of the time with the head to the ground the ostium is then in the most dependent portion. The sphenoidal sinus[4] is the only accessory sinus that can be adequately inspected after intranasal operation. The lining mucosa differs also, in that even in long standing disease there is almost never polyp formation, also a badly diseased mucosa if given adequate drainage shows greater tendency to speedy recovery than does that of any other accessory sinus.

CLASSIFICATION OF DISEASE.

(1) Acute catarrhal inflammation.
(2) Acute suppurative inflammation.
(3) Chronic catarrhal inflammation.
(4) Chronic suppurative inflammation.
(5) Hyperplastic inflammation.
  (a) Hyperesthetic rhinitis type.
  (b) Type of nasal obstruction by polypi, often recurrent.
  (c) Type of disturbed function in the adjacent nerves.
(6) Atrophic inflammation.
(7) Tuberculous inflammation.
(8) Luetic inflammation.
(9) Mucocoele and pyocoele.
(10) Neoplasms.

(1) *Acute catarrhal inflammations.* This is quite common and usually is associated with a general rhinitis. The entire nasal mucosa is edematous and congested. The secretion is serous and spreads over the mucosa of turbinates and meati and is expelled from the nose in large amounts from both anterior and posterior nares.

Symptoms are a sense of fulness and heaviness often localized between the eyes. If there occurs obstruction to drainage from the ethmoidal cells with resultant distension, there is pain between the eyes often radiating to temporal or parietal areas. If there occurs obstruction to drainage from the sphenoidal sinus, there is usually dull occipital pain and often eye disturbances on the affected side.

(2) *Acute suppurative inflammation.* .This is an exaggerated stage of (1) and usually signifies poor drainage. Pus appears in the middle and

superior meati. The pain as described above is often severe. If obstruction to ethmoidal drainage occurs, an abscess may point externally just above or below inner canthus or internally into the orbit. It is well known that each attack of suppurative inflammation in an accessory nasal sinus, altho apparently healed, permantly lowers the resistance of that sinus to subsequent similar infection.

(3) *Chronic catarrhal inflammation.* This is a rather common disease. In this class belong a large percentage of the cases coming in because of so-called "catarrh" or postnasal dropping. This commonly follows and is interrupted by frequent attacks of acute inflammation.

The diagnosis is often difficult. After the patient has been up a few hours and has blown the nose several times, there is often little to be seen except perhaps pallor and slight glazing of the mucosa of middle turbinate, superior and middle meati. However, if the patient can be seen early in the morning, being careful not to blow the nose, the dried secretion can usually be seen at its point of emergence into the nose.

The symptoms of this disease are marked. The patient blows much mucus from the nose and draws it into the throat. The pharynx becomes dry and there is much hawking and spitting. Laryngitis or asthmatic attacks are common, as are also eustachian tube disorders. The nasal mucosa is irritable and frequently becomes congested, interfering with normal nasal breathing. In sensitive individuals neurasthenia is common.

The mucous membrane of lateral nasal wall is moderately thickened, pale and sometimes slightly edematous. If cells are opened the mucosa is pale and covered with thin grayish mucus.

There is no pain with this disease and no crusting nor odor.

Both ethmoids and sphenoid are usually involved. The general health remains good.

(4) *Chronic suppurative inflammation.* All the positive signs and symptoms enumerated under (3) are present, plus the following. There is pus in superior and middle meati. Attacks of pain are common and often severe. The discharge may become foul and crusting is common. Neuritis, rheumatism or other effects of focal infection are frequent. The general health often suffers.

Frequently[12] the anterior ethmoids only, or the posterior ethmoids plus the sphenoid are involved or the sphenoid may be involved alone.

The mucous membrane over which the pus flows shows a distinct atrophy[14] and obstruction to nasal breathing is uncommon. Microscopically, where the pus comes in contact with mucosa there is a change from ciliated columnar epithelium into squamous cell type; there is marked round cell infiltration and the glands are primarily atrophied.

In this disease there are quiescent periods with but little discharge and often no headache, broken by exacerbations of profuse discharge, marked headache and often prostration. These exacerbations usually follow a coryza.

(5) *Hyperplastic inflammation.* In 1909 Uffernorde[15] published his work on the ethmoid and laid particular emphasis on the hyperplastic type; that is, of polypoid degeneration and polyp formation. Previous to that time polyps arising from the ethmoidal region were considered as due to a sinusitis usually purulent. Uffernorde's idea, that polyp formation in region of ethmoid was due to hyperplastic disease of ethmoid, met with severe opposition, but is now generally accepted.

The present day belief[13] is that this condition is dependent upon a prolonged disturbance in the nutrition of the tissues of ethmoid and sphenoid. Probably frequently recurring attacks of coryza, with resultant waves of advancing and subsiding inflammation and consequent damage of mucosa, are a common cause.

It would seem that a mucosa which is very sensitive to irritation (such as seen in hay-fever patients) would be especially prone to this disease. It is also well known that once polypoid degeneration occurs within the nose it is apt to spread rapidly and involve neighboring structures. Within this class of hyperplastic inflammation several clinical types are found:

(a) *Hyperesthetic rhinitis type.* There is a history of frequent head colds and attacks simulating hay-fever that come on at any time of the year. With these attacks there is much sneezing, watery discharge from nose and obstruction to nasal breathing.

There is marked congestion and edema of entire nasal mucosa with much watery secretion. The external nares and upper lip are often excoriated and eczematous. After shrinking with cocaine adrenalin solution the only abnormality observable may be a failure of some portion of the mucosa covering the ethmoid to blanch. Slight pressure here with an applicator may break thru the thinned bony wall of a cell. Or there may be observed small polypi along lower border of middle turbinate or in middle or superior meati. Polypi are often found within the ethmoidal cells. Drs. R. H. Skillern and G. E. Shambaugh have done much to emphasize this type of hyperplastic inflammation.

(b) *Type of nasal obstruction by polypi, often recurrent.* There is a history of frequent removal of polypi from nose with new crop quickly growing out. Usually there is considerable thin discharge from nose. Examination shows large or small polypi growing from the ethmoidal region. The ethmoidal cells contain polypi. These cases are easy to diagnose.

(c) *Type of disturbed function in the adjacent nerves.* Dr. Greenfield Sluder[16] has made extensive study of hyperplastic inflammation, especially in regard to the sphenoidal sinus. He emphasizes three factors which may have an influence on the nerves in contact with the bony wall of this sinus. (1) Extension of the products of inflammation (toxins) thru the thin bony wall, (2) direct extension of hyperplastic inflammation to the soft tissue lining the bony canals or fissures thru which these nerves pass, (3) actual change in the bony walls of these canals or fissures, causing diminution in the lumina of same. Regarding this last named factor, he has observed and recorded the actual change in size occurring in measurable canals, such as the outlet of operated frontal sinus cases, where complicated by this disease. He has found these to grow smaller in the period of a few years.

The three nerves which pass thru bony canals in close relation to the sphenoidal sinus are especially apt to be affected. These are the optic, the maxillary and the vidian. The oculomotor or ophthalmic nerves may become involved in the sphenoidal fissure or the abducens will be in contact with a large sinus extending to the dorsum sellae. These observations with case reports are found in Dr. Sluder's work on hyperplastic sphenoiditis.

Pathology of hyperplastic inflammation.[14] Early there is hyperemia with outflowing of serum into the interstitial spaces of the connective tissue. If mild the process stops here. If the process advances the infiltration of serous elements becomes greater and by force of gravity a mucous polyp soon forms. This process later attacks the bony elements. There may at first be actual bone hyperplasia but later there occurs thinning and softening of cellular walls.

Microscopically, the external epithelium shows round cell and leucocytic infiltration before polyp formation occurs. In the polypoid areas the ciliated epithelium changes to squamous. There is marked connective tissue formation beneath the basement membrane and this becomes filled with serous exudate. The mucous glands are hypertrophied, often with cystic dilatation of acini. The blood vasa atrophy. The periosteum is hypertrophied. Along the bone are found bone cells, some osteoblasts and some osteoclasts but in severe cases the osteoclasts always predominate.

(6) *Atrophic inflammation.* This disease of ethmoidal and sphenoidal sinuses is found as part of a general atrophc rhinitis.[5] Space does not permit discussion of this interesting subject. We should remark, however, on the frequent association of atrophic rhinitis and chronic suppurative accessory sinus disease. The question thus arises as to which is primary. Especially must this be kept in mind, as it is well known that microscopically and grossly there occurs an atrophy of nasal mucosa when kept long in contact with purulent secretion. This possibility of atrophic rhinitis following chronic suppurative sinus disease adds weight to the indication for curing the suppurative process.

(7) *Tuberculous inflammation.* This is a very rare disease. Lockard, in "Tuberculosis of Nose and Throat," 1909, was able to collect from the literature the report of only two cases. The process leads to extensive destruction of tissue with resultant ulcerations and fistulae. These lesions have the characteristic appearance of such lesions elsewhere. The prognosis is bad.

(8) *Luetic inflammation.* This class of ethmoiditis and sphenoiditis[5 12] may start as a simple acute inflammation, but later always becomes purulent. This is usually a tertiary manifestation. Cases have been reported with extensive bony necrosis, but the usual case cannot be differentiated locally from the chronic suppurations of other etiology. Therefore, every case of chronic suppurative sinusitis should have a blood Wassermann test to rule out lues as a causative factor.

(9) *Mucocoele and pyocoele.* Mucocoele[13] of anterior or posterior ethmoidal cells may occur but is much more frequent in the anterior cells. Mucocoele here as elsewhere is due to a closure

of the ostia, usually by hyperplastic inflammation, and leads to a distension of the cavity or cavities by mucoid material secreted by the glands of the lining mucosa. This gradually increasing tension is accompanied by a reabsorption of bone and there occurs distension of the bony walls. Externally a swelling appears at the internal portion of orbit which gradually dislocates the eyeball outward and downward. Intranasally the anterior ethmoidal capsule bulges toward the septum. These swellings are smooth, rounded and elastic, giving a sense of fluctuation. The process is painless except that there may be pain in the eye from pressure. The content is a thick mucoid material, varying in color from yellowish to green and is sterile.

Mucocoele of the sphenoidal sinus seemingly does not occur.

An infected mucocoele becomes a pyocoele. There occurs locally redness, local heat, tenderness and severe throbbing pain.

(10) *Neoplasms.* New growths are not common in this region. Of those occurring, carcinoma[12 13] is the most frequent. Sarcoma also occurs. Both these are friable and very vascular. They soon slough and lead to extensive tissue destruction.

It has been demonstrated[6] that most of the nasopharyngeal fibromata arise from inferior wall and lower anterior wall of sphenoid bone.

Remarks. The above classification has seemed to the writer to give a useful basis for the grouping of clinical cases. It is appreciated, however, that chronic catarrhal inflammation would pathologically be classed as the simplest form of hyperplastic inflammation. Also there occurs hyperplastic inflammation complicated by suppuration. Consensus of opinion is that hyperplastic inflammation is primary and that suppuration is due to secondary infection. Therefore, these cases have not been given a separate classification.

DIAGNOSIS

A carefully taken history is important. One should determine all the symptoms both past and present noted by patient. This is very essential in order to give the case the proper clinical classification.

As to the condition obtaining in ethmoid and sphenoid at time of examination, the writer feels that one must depend above all else upon the appearance of the visible portion of these structures. This is quite different from the other accessory nasal sinuses, namely, frontal and maxillary, where the final criterion of diagnosis is radiograph or content of sinus as shown by irrigation. In examination of ethmoid and sphenoid a portion of middle turbinate and middle meatus may be observed by anterior rhinoscopy. Also, if a patient can properly control the throat, a view may be obtained of the posterior portion of turbinates and meati by means of the postnasal mirror. As a routine measure with private cases this is, we believe, very much less efficient than the examination by the nasopharyngoscope, for example the Holmes model. After applying a little cocaine solution along the floor of the nose one can easily and without the aid or discomfort of patient observe all the detail of the posterior portion of the nose. This instrument focuses at about one inch, so that the region of the ostium sphenoidale is seen in normal dimension, while objects nearer than one inch, for instance tips of inferior turbinates, are much magnified. One can easily determine the color of the mucosa or the presence of dilated and tortuous blood vasa so common in chronic inflammations.

The ease of examination by this method is in marked contrast to the difficulty of the postnasal mirror. Given a patient with an ordinarily intractable throat and palate, and a physician with a postnasal mirror desirous of learning accurately the condition of the posterior superior portion of the nose, the sequence of events is often pathetic. Weighing the possibilities of the two methods, we would venture the assertion that one, who diagnoses diseases of posterior ethmoids and sphenoid and cannot use a direct vision nasopharyngoscope, is almost as far behind the times as one who diagnoses intravesicular diseases and cannot use a cystoscope.

Often the diagnosis is simplified by having the patient come in early in the morning, instructing him not in anyway to blow or clean the nose.

A lateral ray will show any cloudiness present and will give the sagittal relations of the sphenoidal sinuses.

As a routine test, a blood Wassermann in all cases of chronic suppurative sinusitis may save the physician much chargin.

If tuberculosis is suspected, tissue examination, search for tubercle bacilli, or guinea pig injection should be made. If neoplasm is suspected, tissue examination is indicated.

(To be concluded.)

THE DIAGNOSTIC VALUE OF THE ESTIMATION OF THE BASAL METABOLIC RATE.*

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The study of metabolism began as a purely physiologic study. The physiologists, accentuated by a desire to know how the food was taken into the system and made a vital part of it, first studied digestion and absorption into the blood stream. After the theories of digestion and absorption had been fairly well established, they turned their attention toward the conversion of food molecules into tissue and energy. Protein, carbohydrates and fats were all studied. Liebig[1] suggested, and Bidder and Schmidt[2] proved, that the nitrogen of the protein destroyed was practically all excreted in the urine and feces. This work was later confirmed by Voit.[3] A comparison of the nitrogen of the blood with that of the urine gave a fairly accurate estimation of the activity of the kidneys in the chronic nephritides. From the knowledge thus obtained, proper diets could be worked out both in health and disease.

While much has been learned regarding the metabolism of certain substances, and of the action of the organs of digestion and certain of the organs of excretion, with the exception of the thyroid, there has not much information been obtained regarding the glands of internal secretion which are supposed to have considerable control over metabolism. And with the thyroid gland, where we have learned that hyperthyroidism causes an increase in metabolism and hypothyroidism a decrease, the information is not definite enough to be of much clinical value.

Lavoisier,[4] the discoverer of the importance of oxygen in combustion, was the first to become interested in the measurement of animal heat. To him is due the greatest credit in the development of our knowledge of calorimetry. As early as 1780 he taught that animal heat was the result of oxidation and could be compared with the heat produced by oxidation of substances in the process of burning.

He constructed a primitive calorimeter for the determination of the heat radiated from the animal body, and another apparatus for the collecting of respired air from which he determined the amount of carbon dioxide exhaled in a given length of time. Next, he burned sufficient carbon to produce an equal amount of carbon dioxide, determined the amount of heat produced, and found that it corresponded fairly well with the amount produced by the animal. He[5] carried out experiments upon man and was able to prove that the oxygen intake and the carbon dioxide output varied directly with the food consumed, muscular activity and the temperature of the surrounding air. His estimation of the oxygen needed was fairly accurate. Altho his apparatus was crude and somewhat inaccurate, his work stimulated others and directly led to the development of the respiration apparatus for men by Pettenkoffer,[8] in 1862. With this apparatus the carbon dioxide output could be estimated to within one per cent. In 1866 Voit[7] showed that the amount of heat produced in the body could be estimated from the substances oxidized.

Altho Lavoisier estimated heat production by the direct method as well as by the indirect, and constructed a crude direct calorimeter, such an apparatus was not perfected until after Pettenkofer and Voit had worked out the indirect method. Rubner,[6] in 1894, constructed the first combined apparatus for the estimation of heat production by both the direct and indirect methods. Previously he had determined the amount of heat that would be produced by oxidizing a gram of protein, fat or carbohydrates, and Stohman[9] had worked out the caloric value of various foodstuffs. Following the method of Pettenkofer and Voit, Rubner determined the amount of nitrogen in the feces and urine, and carbon output in the expired air and feces. From this he determined the amount of protein and fat that had been oxidized and the heat that would be produced. By direct calorimetry he determined the amount of heat produced during the period the animal was under observation, and found that the two results were the same. He thus proved that the law of conservation of energy applies to animal life. He had also proved that the estimation of the heat produced could be determined within a reasonable degree of accuracy by either the direct or indirect methods.

This discovery virtually opened up a new field. The determination of the heat output by direct calorimetry required an apparatus that was so expensive as to be prohibitive and, further, it required much time to make the determination. It was much easier to collect the excreted products. The problems that were now to be confronted were, first, to improve the method of collecting the excreated products, second, to improve the methods of estimation and, third, to determine the standards of normal individuals. While the former work had been done abroad, the practical application of the knowledge has been developed to a large extent in America.

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The respiration calorimeter of Pettenkofer provided only for the estimation of the carbon dioxide output. Atwater and Rosa,[10] in this country, built a calorimeter along somewhat similar lines, but later added the closed circuit idea of Regnault and Rieset,[11] so that they could estimate the oxygen consumed as well as the carbon dioxide output. With this apparatus it was possible to estimate the heat produced by either the direct or the indirect method, and the indirect method could be determined either from the carbon dioxide output or the oxygen intake. Benedict[12] and his coworkers have perfected the method by oxygen intake determination so that it is reliable. A comparison of the methods used show that the results are practically the same.

As the result of the studies of the various investigators, it was found that the metabolic rate increased in the same individual with muscular activity and during the process of digestion, and that the latter varied with the kind of food ingested. While all of the determinations are of interest, it was necessary that the rate without any exciting factors be known. Gephart and DuBois[13] determined the metabolic rate of normal individuals after a fast from the night before and absolute rest for a short time. This rate is known as the basal metabolic rate, and has been defined by Lusk[14] as "the minimum of energy compatible with cell life."

The basal metabolic rate varies with individuals. Thus the Carnegie institute has shown that there is a variation with sex. There is also a variation with height. Thin people produce more heat per kilogram of body weight than the fat, and young people produce more heat than the aged. For the heat determination to be of clinical value it was necessary to have some basis for comparison which would be constant in the majority of individuals. Rubner had demonstrated that metabolism is proportional to body surface. A method of estimating body surface had been worked out, but there was a considerable source of error. As calorimetry passed from a place where it was principally of scientific interest to one where it was recognized as being of clinical value, the need of more accurate methods of determining the body surface was felt. E. F. and Delafield DuBois[15] made accurate measurements of the body surface by means of a thin composition cast. From this they worked out the formula: $\text{Area} = \text{weight}^{0.425} \times \text{height}^{0.725} \times 71.84$. This formula has been chartered for the various heights in centimeters and weights in kilograms, so that the determination of the body surface in square meters can be quickly made by referring to chart. Using this formula for determining the area of the body surface, Gephart and DuBois[13] found that between the ages of twenty and fifty the average heat production per square meter was 39.7 for men and 36.9 for women. Correction needs to be made for those under twenty or over fifty, but no correction for height, weight or state of body nutrition is necessary. Armsby, Fries and Bramen[16] have shown that the basal metabolic rate per square meter of body surface of horses, swine and cattle does not differ materially from that of man.

As the methods of computing the metabolic rate were improved, the apparatus for its determination was simplified. Direct calorimetry, because of the large expensive apparatus required, has not been used to any great extent outside of the institutions chiefly interested in the scientific side. Indirect calorimetry has become popular. The carbon dioxide method has been improved, until the collecting apparatus now consists simply of a Tissot mask and a spirometer bell, or a Douglas bag, with the necessary connecting tubes. The Haldane gas analysis apparatus, however, is required in the determination. The use of this is somewhat complicated and subject to error except in the hands of a trained technician.

Benedict[17] recognized the need of an apparatus that would be portable and not require the services of a trained technician, and yet be sufficiently accurate for clinical purposes. Accordingly, he has developed a simple oxygen apparatus consisting of a spirometer bell, a blower, jars for chemicals for removing carbon dioxide and water, and a mouth piece, with the necessary connecting tubes. This apparatus has the advantage over those of the carbon dioxide method in, first, its simplicity of construction, second, its portability and, third, the ease with which estimations can be made without risk of serious error. If desired, the carbon dioxide output can be calculated with this apparatus.

The importance of metabolic studies in lesions of the thyroid was first pointed out by Friedrich Muller,[18] in 1893, after observing that his patient not only lost in weight when upon a diet greater than normal, but that the nitrogen output indicated a protein destruction greater than the intake. Shortly after this Magnus-Levy[19] began the work which has really been most instrumental in establishing the importance of the thyroid in metabolism. He showed that there was an increase in the metabolic rate in hyperthyroidism and a decrease in hypothyroidism. By feeding thyroid extract he demonstrated that the heat production could be increased in hypothyroidism, proving that the deficiency was due to a deficiency in the thyroid secretion. In one case he increased the rate as much as 70 per cent. He used the metabolic rate as an index in treatment. Magnus-Levy used the indirect calorimetry method, being the first one to apply respiratory calorimetry to thyroid metabolism, and thus proved its reliability in this field. Hirschlaff,[20] in a very careful study, confirmed the work of Magnus-Levy, as did also Steyrer[21] and others. Kendall[22] has isolated a substance which he calls thyroxin, which evidently is the active principle of the thyroid secretion, for it produces the same effect upon administration as does thyroid extract. This substance is apparently one of the chief if not the chief substance in the regulation of metabolism in the normal individual.

Dubois,[23] in a careful observation upon eleven patients with hyperthyroidism and one cretin, has done much to standardize the work. He calculated the rate by both direct and indirect calorimetry, and was able to show that there was but very little difference between the two. Very severe cases of hyperthyroidism showed an increase of 75 per cent. or more over the normal average, severe cases 50 per cent. or over, and mild or moderately severe cases under 50 per cent. DuBois concludes that at least a part if not all of the clinical manifestations are due to the increased metabolism that results from the hyperthyroidism.

Our work upon this subject has been upon thyroid lesions entirely. We use the Benedict portable oxygen apparatus. The spirometer bell is filled about one-fourth full with air and then about twice as much oxygen from the tank is added. The blower is run for a few minutes to insure an even mixture. The patient comes down in the morning after a fast of at least fourteen hours and often sixteen. Not even water is permitted during this period. The patient is weighed either stripped or in an office gown of known weight, and the height determined in the stocking feet. Following this the patient is put at rest upon the couch upon which the determination is to be made, and cautioned not to move even a finger. He is not allowed to talk, and only office attendants are permitted in the room. After half an hour the freshly sterilized mouth piece is placed in the patient's mouth and connected with the machine. The nostrils are closed with the clamp, and the patient permitted to breathe from the outside air for a moment or two, in order to become accustomed to breathing thru the mouth piece with the nostrils closed. After the respirations have become steady, the valve is turned so that the patient breathes from and into the spirometer bell. Waiting for a few moments for him to become accustomed to breathing from the spirometer bell and the respirations to become even, a reading is taken at the height of expiration; the time is noted; and the reading of the thermometer that registers the temperature in the spirometer bell is taken. The patient then breathes from the apparatus for ten or twelve minutes, when the respirations are again observed, and the reading at the height of an average expiration is taken. The time of this reading is noted as well as the temperature. During the time the patient was breathing from the apparatus, the blower was blowing the air thru a soda-lime bottle to take out the carbon dioxide, so that the difference in volume in the tank between the time the experiment was started and closed represents the amount of oxygen consumed. This volume is corrected for temperature and barometric pressure, and the amount that would be consumed in one hour estimated. We do not determine the respiratory quotient but use 0.82 which was shown by Benedict, Emmes, Roth and Smith[24] to be the average in a study of 88 men and 66 women. The volume of oxygen in liters that would be consumed in one hour is then multiplied by 4.825, the caloric value of oxygen at the respiratory quotient of 0.82. The product is then divided by the number of square meters of the body surface of the patient, as estimated by the DuBois height-weight chart. This gives the basal metabolic rate. The rate obtained is compared with the Gephart and DuBois estimate of 39.7 for men and 36.9 for women between the ages of twenty and fifty, and the percentage above or below the average, if any, is determined. Anything between 10 per cent. above and 10 per cent. below the average is regarded as normal. For those over fifty the rate is approximately 10 per cent. below the average, while for those under twenty it is 10 per cent. above.

The following typical cases serve to show the findings in different thyroid lesions.

Case 1. Hyperthyroidism. Case No. 2714, male, white, age 40, married, laborer, native of Albania. Family history and previous personal history were entirely negative so far as they could be obtained. About three months before he noticed that the right side of his neck was increasing in size. He was somewhat anxious about it but did not think it had caused him much trouble.

Examination showed the patient to be a man, 5 ft. 1¼ in. in height, and weighing 135 lbs. Pulse 88. Temperature and respirations normal. Neck: There was a moderate, diffuse increase in the size of the right lobe of the thyroid gland. Pulsations were felt and a distinct bruit heard. Chest: There was no apparent enlargement of the heart. The tones were normal. Abdomen: Negative. Extremities: Slight tremor of the fingers. Palms moist. Basal metabolic rate 72 per cent. above normal.

Case 2. Hypothyroidism. Case No. 2938. Referred by Dr. Newton M. Wade. Female, white, age 42, married, housewife, born in Belgium. Family history negative. Complaint: goiter, nervousness, backache, slight cough, leucorrhea. Previous history: Has had a goiter for several years, otherwise negative. Menstrual history: Began at 12, always regular, not painful. Has had seven children and three miscarriages.

Examination showed the patient to be 5 ft. 4in. in height, and weighing 151 lbs. Pulse 80, regular and of normal tension. Temperature and respirations normal. Head: Tonsils submerged, pyorrhea. Neck: Both lobes of the thyroid gland moderately enlarged, the right greater than the left. There was no pulsation and no bruit. Abdomen: Tenderness extending across the lower fourth of the abdomen. Vaginal: Lacerated perineum. Rectocele. Whitish vaginal discharge. Nervous and mental: Reflexes slightly exaggerated. Neurotic temperament. Basal metabolic rate 28 per cent. below normal. Diagnosis: Colloid goiter, hypothyroidism, lacerated perineum, rectocele, pyorrhea, neurasthenia.

Tumors. A study of the basal metabolic rate in tumors of the thyroid shows that it varies directly with the influence of the tumor upon the secretion. Thus a toxic adenoma gives an increased rate, while a simple non-toxic adenoma gives a normal rate. Malignant tumors may show a moderate increase but often the rate is not affected. The following case is illustrative:

Case No. 2901. Referred by Dr. C. H. Newth. Female, white, age 18, single, domestic, born in America. Complaint: Swelling of the neck with some pain and cough. Family history: One uncle died from goiter. Patient does not know what type of goiter it was. Previous history: Negative except for goiter. Menstrual history: Began at nine. Interval six weeks, not painful. Duration and flow about normal. Present illness: Small goiter developed at the age of fourteen. There was but little change in the goiter until three months previous to our seeing the patient. The goiter then started to grow rapidly. She thought there had been no increase, and possibly a decrease in size during the preceding month. At times she had had fever and an unproductive cough had developed. There were times when the cough was productive. There had been no loss in weight.

Examination showed a robust girl, 5 ft. 3 in. in height, and weighing 142 lbs. Her cheeks were rosy and, except for the enlargement of the neck, she did not appear sick. Pulse 80 and normal in rate and quality. Temperature and respirations were normal. Head: Normal. Neck: There was a pronounced enlargement apparently of both lobes and the isthmus of the thyroid gland, and of the lymphatic glands at the angle of the jaw on the left side, and some enlargement of the other glands of the neck on both sides. The basal metabolic rate was 5 per cent. above the average. A diagnosis of sarcoma was made but, owing to the history of fever with a recent cessation in growth, it was thought there was a possibility of its being an infection, so an operation was advised.

At the operation it was found that the left lobe and isthmus were markedly enlarged and necrotic. The isthmus projected over on the right side so far that from the outside it appeared to be the right lobe. The right lobe was normal. There was also a necrotic mass posterior to the left lobe. Microscopic examination of the material removed showed necrosis and round cell infiltration. About three weeks after the operation the mass began to grow rapidly and produced compression of the trachea interfering with respiration. Under a gas anesthetic the pressure was relieved. Sections made from the material that was compressing the trachea showed it to be a myxosarcoma. The patient has since died.

SUMMARY.

1. Calorimetry gives an accurate indication of the rate of metabolism.

2. Calorimetry may be determined by either the direct or the indirect method.

3. For the determination by the indirect method either the oxygen or the carbon dioxide method may be used.

4. The simple portable apparatus of Benedict is sufficiently accurate for clinical purposes.

5. The basal metabolic rate estimation has become sufficiently standardized so that it should be determined when diseases that produce an alteration in this rate are under consideration.

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THE INTERPRETATION OF BASAL METABOLISM DETERMINATIONS WITH SPECIAL REFERENCE TO HYPOTHYROIDISM AND HYPERTHYROIDISM.*

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Of late much interest and discussion are manifest in basal metabolism determination and its clinical application in differential diagnosis, and particularly in the diagnosis of hypothyroidism and hyperthyroidism. Its value in both the medical and surgical treatment of these conditions is also becoming widely and rapidly recognized.

The basal metabolic rate, that is, the metabolism in the resting and fasting state, is measured by determining the body heat production, either by the measurement of oxygen consumption or carbon dioxide exhalation, or by direct calorimetry It has been shown by Gephart and Dubois[1] that there is a very close parallel between the heat calculated from the measurement of the gas in metabolism, and that directly measured in a respiration calorimeter, which proves that an accurate measurement of oxygen consumption is a very close index of the total heat production. Benedict[2] claims that oxygen consumption is superior to carbon dioxide as an index of the total metabolism and the energy transformations.

The basal metabolism in the normal subjects has been extensively studied by Benedict, Carpenter[3] and others, and a normal or average metabolic rate determined. This varies with the age, sex, height and weight of the individual. Working on these factors, DuBois and DuBois[4] formulated a "height weight" chart, from which the square meters of the body surface can rapidly be calculated. The average heat production, using this chart to determine the body surface, is 36.9 calories per square meter per hour for women, and 39.7 calories per square meter per hour for men. Variations for age are computed separately. It is generally considered that an increase of 10 per cent. above normal or average metabolic rate, or a decrease or 10 per cent. below the level, are within normal limits. It has been our experience that many cases really normal have metabolic rates varying widely from this normal average. But metabolism is a physiologic process and has its normal fluctuations the same as have other physiologic processes, such as the body temperature or the pulse rate.

Until recently the methods of determination of the basal metabolic rate have been beyond the reach of the average clinician on account of the complicated technique required in gas analysis, or the employment of cumbersome and expensive apparatus for direct calorimetry, such as those used in some of our larger research institutions; but the portable respiration apparatus as devised by Benedict[2] has placed before the profession a simple contrivance for clinically accurate indirect calorimetry. It is this apparatus which really places basal metabolism determinations on a practical clinical basis, and within the reach of the general practitioner. McCaskey[6 7] has done much to popularize this method and urge its more extensive use in general diagnosis.

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The value of basal metabolism determinations has been fully proved. This work has undergone a long and gradual process of evolution and long ago passed the experimental stage. Thru the work of Magnus-Levy[8 9] the alterations in metabolism in hypothyroidism and hyperthyroidism were first definitely demonstrated. Basal metabolism determinations have been made in many other pathologic conditions, but so far their clinical value applies particularly to lesions of the thyroid gland. Kendall,[10] in 1914, isolated the active principle of the thyroid gland and called it "thyroxin." This discovery is one of the most important made in recent years. Plummer[11] believes the metabolism of all body cells is affected by thyroxin. While this substance is, no doubt, the most important factor in the regulation of the metabolism, other hormones, especially the secretions of other endocrinous glands, also play a part. This is especially marked in the action of the secretion of the suprarenal glands. Tompkins et al[12] have shown that the metabolic rate is markedly increased by the action of adrenalin. This secretion acts probably thru its stimulating action on the thyroid gland and its effect upon the vascular supply of this organ. In severe cases of thyrotoxicosis, therefore, the Goetsch test is not without its danger. Just what action the ovarian, testicular or other endocrinous secretions have upon metabolism is not known. Halsted[13] ascribes much importance to the thymus gland in exophthalmic goitre, and Blackford and Freligh[14] have found that an enlarged thymus is present in this condition in 100 per cent. of cases under forty years of age, and in 50 per cent. of those over this age. My associate, Dr. J. Earl Else, believes from his work and observations on the thymus, that it is a lymphoid structure which enlarges secondarily in some thyroid conditions in much the same manner in which lymph glands enlarge secondarily to infective processes in their vicinity. Kendall[15] believes that the amino acids, proteins, creatin and creatinin, and perhaps other unknown substances also have their effect upon metabolism. It is known from experimental work that complete thyroidectomy causes a drop in basal metabolism to about 40 per cent. below the normal average, and just what factors keep it at this level is a mooted question.

It is important to know of the physiologic fluctuations in basal metabolism before attempting to correlate the latter with an altered rate in some pathologic condition. The conditions which influence the metabolic rate should be kept in mind constantly, and all tests carefully made and repeated for accuracy, or otherwise wrong deductions may be made, and perhaps a number of inaccurate and conflicting observations will find their way into the literature. Variations in metabolism occur incident to digestion, exercise and in emotional nervous states as anger or fright. It is believed by some that trauma to the nervous system, as for example the terrific strain incident to actual warfare, greatly increases metabolism, and has been productive of an increased number of cases of toxic goitre in soldiers. In civil life excessive nervous strain may have a like influence in the etiology of this condition.

In a large number of thyroid lesions there is a definite relation between the pathology of the thyroid gland and basal metabolism. Pathologic conditions of the thyroid, in which the acini are destroyed or in which the epithelium is markedly flattened out, lead to lessened thyroxin production and a decrease in metabolism, while in other conditions, where the parenchymatous structures are increased, there is an over secretion and an increase in metabolism.

Altered metabolism has been found to occur in many other pathologic conditions, as in leukemia, anemia, pernicious anemia, typhoid and other fevers, decompensated heart lesions, certain cases of arthritis and no doubt in many other diseases in which this factor has not yet been worked out. It will be interesting to note whether or not the metabolism is altered in the so-called asthenic state.

In hypothyroidism there is an exact relation between the basal metabolic rate and the lack of thyroxin. In myxedema the rate may drop from 30 to 40 per cent. below the normal average, but the rate in this disease fluctuates and does not remain at one constant level. It has been shown that 1 mgm. of thyroxin, given intravenously, raises the basal metabolic rate 3 per cent. This substance has a cumulative action and does not attain its maximum effect until about ten days after its intraveneous administration. Janney[16] found that in cretinism Kendall's thyroxin should be given in average doses of .75 mgms. daily, which corresponds to about four grains of thyroid extract. He believes that large doses of thyroid extract should not be given. In the treatment of hypothroidism the aim should be to find the minimal dose of thyroxin or thyroid extract necessary to maintain the normal or average metabolic rate, and this can be better regulated by basal metabolism determinations than by the symptoms or signs presented by the patient.

Basal metabolism may fall well below the normal level, and state of hypothyroidism apparently exist without any signs or symptoms of this condition being present. Means and Aub[17] have shown that this low rate can be raised to and above the average level by the administration of thyroxin and no signs of hyperthyroidism appear. Lowered metabolism is usually present for a variable length of time before the symptoms of hypothroidism appear, and also an increased metabolism may be present for a variable length of time before symptoms of hyperthyroidism appear. Therefore, the basal metabolic rate is a far better index of the degree of severity of hypothyroidism and hyperthyroidism than the symptoms would indicate. It has been shown that the higher the metabolic rate, the more severe is the toxemia, and also that there is no definite relation between the basal metabolic rate and the symptoms. The different thyroid groups react differently toward the toxemia. Some individuals stand this better than others. According to the basal metabolism test, mild and moderate cases of thyroxicosis vary from 25 to 50 per cent. above the normal average. Severe cases vary from 50 to 70 per cent. above normal and extremely severe cases may run over an increase of 100 per cent. Many cases vary widely from these percentages, as some apparently mild cases show a severe degree of toxemia and some apparently severe cases show a low degree.

It has been shown clinically by Means and Aub[13] that the resting pulse rate, when taken at different times, is a fairly good index of the degree of thyrotoxicosis. But the basal metabolic rate is the determining factor in arriving at a conclusion as to the severity of the toxemia in these atypical cases.

In toxic goitre periods of remission may occur, during which the metabolic rate may be lowered to or even below the normal average. The toxic symptoms, however, may persist in spite of this. There seems to be a tendency in thyrotoxicosis as in most other diseases, toward a spontaneous recovery, and many cases no doubt have recovered in this manner. In cases of long standing permanent damage may be done by the toxemia, so that many of the symptoms never disappear. For example, in many cases of exophthalmic goitre, the exophthalmus or tremor may persist indefinitely after proper treatment has reduced the metabolic rate to within the normal average level.

In spite of the increased combustion in hyperthyroidism, in which condition the body heat is greatly increased, the body temperature remains normal. This phenomenon has been compared to the boiling of water—the same temperature is maintained, even tho the water is made to boil violently by the addition of more heat.

The interpretation of the fluctuations in the basal metabolic rate is of vital importance. More than one test should be made for accuracy, and it must be borne in mind that basal metabolism in itself is not pathognomonic of hypothyroidism or hyperthyroidism, but is very nearly so when taken together with the clinical signs and symptoms. It is of invaluable aid in the diagnosis of toxic goitre, suspected myxedema, and in cases when the symptom-complex is suggestive of goitre, whether enlargement of the thyroid is present or not. In the treatment of goitre and myxedema it has been shown that basal metabolism determinations are of the greatest importance. It has great value in the prognosis of surgical goitre, and is of inestimable value in determining the method of operative procedure, whether it be the ligature of one or both superior thyroid arteries in very severe cases of thyrotoxicosis, or whether or not resection of one or both lobes of the thyroid is indicated, as in severe or moderate cases. Rest in bed for several days decreases the metabolic rate about 10 per cent. in most cases. Means and Aub[17] believe that x-ray therapy also has a marked effect in lowering the metabolic rate. The factors are of value in preoperative treatment. Basal metabolism determinations are also of value in postoperative cases. Occasionally a case, in whom an insufficient amount of thyroid gland has been removed, will continue with a high metabolic rate which necessitates further resection. But usually the rate is reduced 50 per cent. within two weeks after thyroidectomy. Means and Aub[18] have shown that a secondary rise occurs up to the fourth month, after which time there is a gradual decline which progresses until the third year after operation, at which time the rate is within the normal average. Basal metabolism, then, has an established value in diagnosis, prognosis, and treatment of thyroid lesions and its value is greatly enhansed by the ability of the examiner to properly interpret the basal metabolic rate determinations. The value of these are augumented by the ability of the examiner to understand the factors concerned in the fluctuations of the basal metabolic rate, and to properly correlate them with the symptoms and signs presented by the cases under study.

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THE MEDICAL ASPECTS OF GRAVES' DISEASE.

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Graves' disease was first clearly described by Caleb Parry as early as 1786. In 1828 Adelman called attention to the type of heart action which obtains in this condition.

In 1835 Graves accurately described the disease in his lectures, which were published in book form eight years later. Since that time English speaking physicians have done Dr. Graves the honor to call the disease by his name because of his clear description of it.

In 1840 Basedow described the condition in Germany and since 1858, following the suggestion of Hirsch, the symptom-complex has been known as Basedow's disease by the Germans.

Many other names may be mentioned in connection with this important disease. Charcot, Von Graefe, Stellwag, Marie, Kocher, Mobius, and in our own country Crile, C. H. Mayo, Ochsner and Kendall and others have been prominently connected with the advancement of knowledge of the etiology, symptomatology and treatment of Graves' disease. Because of these facts and because exophthalmos is not necessarily a symptom, the term exophthalmic goiter is not a good one.

The term hyperthyroidism is similarly objectionable, because in many cases no doubt there is disturbance in other of the endocrine glands as well as in the thyroid; consequently the term Graves' disease. Since Parry first discovered the condition and because of the fact that many physicians discourage this practice of naming a disease after its discoverer, there are those who object to the term employed in this paper. However, it would seem that until we have more definite data as to the cause of this condition, Graves' disease will remain the least objectionable name by which to know it.

The function of the thyroid gland is to furnish a chemical substance which helps to maintain the chemical balance of the animal body by its action upon other ductless glands and upon the various body tissues and thus aids in establishing and maintaining perfect metabolism. This chemical substance is a very important one in the bodily economy, for the animal can not successfully maintain its existence if there is an entire lack of it, and a mere diminution or a slight excess brings about disordered states of health. Hypofunction of the thyroid produces that condition known as myxedema and hyperfunction, probably coupled with other endocrine disturbances, is, there is no doubt, the cause of Graves' disease.

It was proved by Kocher, at first accidently, that total extirpation of the thyroid gland results in an early death from myxedema, tho as early as 1859 Schiff noted the fact that total extirpation of this gland was invariably followed by death. Vessale in Italy and Gley in France, in 1890, working independently, showed that myxedematous animals could be kept alive by injections of the extract of thyroid gland, and the next year (October 10, 1891) G. R. Murray published a report of the striking results obtained by the administration of thyroid extract to a myxedematous patient.

Graves' disease is much more common in females than in males. Probably the proportion of one to six is the average of the numerous reports of the experienced clinicians who have written upon this interesting subject. There is no doubt that a parenchymatous goiter may assume the symptoms of Graves' disease. It may, in some way, be connected with the sexual lives of the victims, for we know that there is a close relationship between the gonads and the thyroid gland, and because the disease usually develops between the ages of twenty and forty. We also know that in girls at the age of puberty the thyroid gland often swells noticeably, only to subside in a few weeks or months, or at the longest a year or two. This type of goiter may be termed a physiologic goiter and usually, except to quiet the fears of the young patient and her family, requires no treatment.

Intense emotions may give rise to Graves' disease. No doubt this is because of the disturbance in the endocrine system from these nervous influences and the pouring out of unusual amounts of endocrine substances, which brings about unusual thyroid activity which in turn may produce pathology. The administration of thyroid extract has a marked influence on the subthyroidic type of individual. Metabolism is much increased; there is increased cell activity; absorption and assimilation are improved, all of which, when properly accentuated, are the symptoms of Graves' disease. Also it is entirely possible to produce more or less typical symptoms of Graves' disease in the normal individual by the administration of thyroid extract. And Kendall was able to bring about the emaciation and death of a monkey by the injection of alpha-iodine comp. which he has recently produced from the thyroid gland.[1] The animal weighed normally 13½ pounds and at death weighed 6 pounds. It was given daily injections of 1½ mgm. for seventy-two days before death resulted.

One writer[2] suggests that Graves' disease bears a similar relationship to myxedema that mongolianism bears to cretinism, that Graves' disease is the adult or delayed type of mongolianism. It is fairly well agreed that mongolianism is due to intrauterine fault and it follows that, if we are to fully agree with this writer, we must agree that those individuals who are the victims of Graves' disease are doomed to the disorder at birth. Or it is perhaps permissible to assume that the metabolic fault may not begin until much later in the life of the individual but, even admitting this possibility, it is very difficult to see much symptomatic similarity between Graves' disease and mongolianism.

Another writer mentions extreme excitability, sleeplessness, tachycardia, reactive vasomotor system, and accelerated metabolism seen in Graves' disease and says that the picture is a complete contrast to thyroid deficiency and that all of the symptoms and results mentioned may and have been produced by the administration of thyroid substance, and that if the treatment be continued will lead to rapid emanciation. He also says that under the administration of thyroid substance the respiration exchange is increased and sugar tolerance is lowered so that glycosuria often occurs.

In Graves' disease we have the overstimulation of metabolism, of cell activity, of absorption and assimilation, and thus the nervous, temperamental, spare individual results. As a result of this continuous over stimulation organic degeneration takes place and is most apparent in the heart and nervous system. It would appear that authorities differ only as to the exact pathologic cause or causes which give rise to Graves' disease, but are well agreed that myxedema and Graves' disease are metabolic opposites, and that malfunction of the thyroid is largely responsible in both conditions. Probably the physiologic chemist will bear the larger part of the burden of further inquiry into the etiology of this malady.

The diagnosis of simple goiter is easy because of the definite location of the enlargement, and because of the fact that the thyroid is attached to the trachea which causes it to move upward with the larynx during the act of swallowing. It is necessary to rule out enlarged lymph nodes (carcinoma, leukemia, sarcoma) and lipomata and branchial cysts.

The diagnosis of Graves' disease may present a very different problem at times, however. The frank case presents no difficulties. The definite tumor of the neck, the protruding eyes, the tremor, tachycardia, the unbounded energy and nervous tension all go to make up a picture that once seen produces a lasting impression upon the observer. However, we know that Graves' disease may exist without exophthalmos and it may exist without noticeable goiter. It is necessary to make a diagnosis at times with the symptom of tachycardia plus laboratory findings. Tachycardia coupled with either exophthalmos or goiter is almost surely the result of Graves' disease.

In some cases the enlargement of the thyroid is so slight as to escape the notice of the patient herself, and the same may be said of the exophthalmos. Many a patient has been unjustly called neurotic because these slight symptoms have been overlooked by her physician and one should always be suspicious of the thyroid in a patient whose heart beats persistently ninety or more times a minute.

One must keep in mind, however, that nicotine and alcohol may both bring about myocardial degeneration and consequent tachycardia, and this, coupled with alcoholic tremor, may be very misleading. Some drugs—coal tar derivities, calomel, quinine and choral—must be born in mind in this connection.

The signs already enumerated, goiter, exophthalmos and tachycardia, may be called major signs. There are many minor signs which point toward this disease. Ochsner and Thompson gave a list of twenty-four minor signs.[4] The more important of these are tremor, nervous excitability, muscular weakness and the eye signs of Von Graefe, Stellwag and Mobius. The most important of the minor signs is tremor. It is a constant sign in cases that are moderately or well advanced and is usually confined to the hands, tho tremors may be seen in the muscles of the trunk and may produce a body quiver. The tremor is usually fine and may be increased by excitement. It is present during rest and the rapidity of movement is about ten per second. It is best seen when the patient extends the arms with the palms downward and the fingers widely separated.

Muscular weakness becomes noticeable, as metabolism is rapidly increased by greater and greater quantities of thyroid secretion, which is thrown into the blood stream. In advanced cases muscular weakness is always present. This may be evidenced by fatigue, by loss of muscle control and paraparesis. The patient, altho nervous and of seemingly boundless energy, discovers soon after the onset of the disease that she is easily fatigued, that she clumsily drops small objects and as time goes on she may find that to rise from the sitting position she must lift the weight of the body with the arms. As the toxicosis becomes more pronounced weakness of groups of muscles may amount to partial or complete paralysis.

As a direct opposite to myxedema, in which there is tissue infiltration due to lowered metabolic exchange and consequent lethargy, in Graves' disease there is always nervousness and excitability which may be mistaken for hysterical manifestations. And since this disease is sometimes induced by some severe mental or nervous strain, it is not surprising that the mistake should occasionally be made by the casual observer. Many patients are very prone to fits of mental excitement and elation. They are often a great source of worry to the family on account of sudden fits of religious fervor or of love affairs. They are likely to be extremely irritable, talkative and emotional.

The eye signs of Von Graefe, Stellwag and Mobius are all the results of the proptosis. In 1856 Desmarres, in France, discovered the symptom which was again described by Von Graefe and which has since been known by the latter's name. It is elicited by directing the eye downward, and if positive the upper lid does not follow closely as it normally should, or perhaps follows in an irregular spastic manner. Stellwag, in 1869, called attention to the fact that in cases suffering from extreme exophthalmos there is a retraction of the upper lid. There is less winking than normal and the lid remains more stationary than under normal conditions. Mobius' sign consists of an insufficiency of convergence. It is elicited by directing the patient to fix the vision on an object a meter or more distant and, upon causing the object to move toward the patient's eyes, a point will be reached at which only one eye will continue to fix the object. Mobius called attention to this sign in 1895. It is present in most cases of exophthalmos due to goiter. These three signs are probably the result of muscular weakness due to the toxicosis so evident in this disease.

It is well known that the thyroid is not noticeably palpable in some cases of Graves' disease. It is fortunate that physiologic chemistry has given us means by which we may study suspected cases thru their metabolic aspects. Even in its earliest period hyperthyroidism presents a definite picture of lowered sugar tolerance and increased metabolism. There is always a definite alimentary hyperglycemia and definite increase of oxygen consumption. To Tachau[5] has fallen the honor of calling the attention of science to the occurrence of alimentary hyperglycemia in hyperthroidism. The methods employed by him were too difficult and too cumbersome for clinical use. However, Lewis and Benedict[6] and Myers and Bailey[7] and others have so simplified the chemical procedures that blood sugar may be accurately estimated in any clinical laboratory.

The technic as used by the writer is as follows: A solution in the proportion of 1 gm. of glucose to 2 cc. of water is prepared. The patient is asked to empty her bladder and is then asked to drink 2 cc. of water for each kilogram of body weight. In one hour 5 cc. of blood is taken from a vein and the patient is asked to drink the prepared glucose solution to the amount of 1.75 gm. of glucose per kilogram of body weight. Five cc. of blood and specimens of urine are obtained each hour for three hours. The amount of glucose given in this test does not, to the usual observer, give rise to hyperglycemia remaining at the end of one hour, altho Hamman and Hirschman[8] have reported that they have observed hyperglycemia in normal persons after the administration of 100 gms. of glucose. The crest of the wave occurred in twenty to forty minutes. It is to be remembered that alimentary hyperglycemia is not pathognomonic of hyperthyroidism, but may be observed in pituitary disorders, Addison's disease and various other endocrine disturbances as well as in alcoholism and arthritis. This test is a means of studying the rate of metabolism and should be so regarded.

Benedict has described an apparatus[9] which he has devised, by which may be measured the oxygen consumed by the fasting patient at rest and thus accurately measure the basal metabolism. By basal metabolism is meant that minimal amount of cell activity necessarily the result of the continuous organic functions of respiration, circulation and secretion. The old calorimetric estimations of basal metabolism have been cumbersome and adapted only to the use of especially well equipped hospitals and other institutions which can afford adequate space for the complicated apparatus, as well as afford the services of an expert gas analyst. Benedict took advantage of the fact that heat production can be accurately measured by oxygen consumption. He invented an apparatus with this principle in mind which is comparatively simple and may be employed by any one with routine laboratory experience. However, the work must be accurately done and results carefully computed.

A writer who has recently discussed the diagnosis of thyroid disorders[12] points out the facts which have recently become well known relative to the reaction of the thyroid to the administration of adrenalin. If a dose of .5 cc. of 1-1000 fresh adrenalin be administered to a normal individual, the pulse is not affected and the blood pressure is but slightly increased. If the same amount be administered to a patient suffering from hyperthyroidism a considerable increase of pulse rate occurs and a marked increase of blood pressure takes place, which varies in individuals from ten to fifty points. In about thirty minutes there is a moderate fall followed by a slight secondary rise. Asthenia, tremor and pallor followed by flushing and sweating are fairly constantly noted. These are all signs of hyperthyroidism and this test has proven of value in differentiating hyperthyroidism from conditions simulating it but, like the ailmentary glycemia test and the basal metabolism test, it is a test of metabolism and not invariably diagnostic of hyperthyroidism.

Medicine, surgery and roentgenology vie with one another in attempts at amelioration of symptoms in and cure of this serious and obstinate malady. Since the condition is probably due to disturbances in other structures as well as in the thyroid, attacks on this gland, without other measures being at the same time adopted, are liable to lead to disappointment. This holds true in surgery, in roentgenology and in the application of radium and, important as are these three methods of treatment, it still holds good that dietetic and hygenic treatment are still of utmost importance. Let us, then, before and after direct attacks upon the thyroid gland, and in the milder cases in which medical treatment alone is clearly indicated, bring into play those medical measures, some of which have proven of worth for nearly a hundred years.

Because of increased metabolism in this condition, rest is of utmost importance and in extreme cases rest in bed should be insisted upon. In those milder cases ten hours in bed at night, a half hour of rest after every meal, avoidance of all excitement and other mental disturbances are indicated.

Rapid elimination in Graves' disease will give rise to inordinate appetite and we find that these individuals are exact opposites to myxedematous subjects who do not tolerate carbohydrates, fats and proteins as well as do those in good health. In consequence it is well to give these patients a plentiful and well balanced diet, remembering only that the colloid of the thyroid contains an excessive amount of iodine which is contained in most vegetables and it would seem logical that they should be eliminated as far as practicable from the diet. Organic extracts have been used by many investigators to neutralize the excess of the thyroid secretion and to combat the hyperfunction of the gland. Extracts of adrenals, of pituitary gland, of the spleen, of the ovaries, and of the parathyroids have all been tried and the latter only has given hope in this form of medication. The serum of thyroidectomized goats has been introduced by Mobius and can be had in the drug market. It was hoped that by this means a lessening of the toxic symptoms of the excess of thyroid secretion might be brought about. No appreciable amount of good has come from the plan.

The heart's action must be controlled and digitalis is the popular means to this end. Some authorities recommend strychnine and strophanthin as cardiac tonics, but it must be remembered that their only effect in this condition is to limit the tachycardia. Belladonna has been used fairly extensively, but, because of its effect of enhancing metabolism, it would seem to be contraindicated. Iodine employed either externally or internally may be mentioned only that its use in this type of goiter may be condemned.

Leonard Williams has in several cases reported good results from injection of bile salts and the results thus obtained can be explained because of the sedative effect of these salts upon the brain. Forsheimer recommended hydrobromate of quinine and reported favorably upon its use. Kocher used sodium phosphate with the hope of eliminating the poisons emanating from the thyroid.

One writer[13] is very pessimistic as to results likely to accrue from treatment and says that medical treatment is of no avail and surgical treatment is disappointing. It would seem that this attitude while in a measure justifiable, is less hopeful than the facts warrant.

The writer does not wish to appear to be endeavoring to minimize the great good that has come out of the efforts of the surgeon and the roentgenologist in the treatment of this disease, but it is his desire to point out the fact that the clinician and the physiologic chemist working with the pathologist have made possible our present knowledge of the etiology and symptomatology of this condition and, further, to point out the good that will come from a closer relationship between the trained clinician and the surgeon or roentgenologist in the diagnosis and treatment of Graves' disease. Much remains to be said in writing upon this important subject, but in an article of this kind one may give but a meagre and inadequate sketch. If the writer is able to impress upon the reader the importance of the work of the internist in this malady, he is fully satisfied.

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GOITER*

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This is a subject I have been interested in for some time and I wish to take this opportunity of reporting the last seventy-five consecutive cases which I have operated on. I believe as a rule the most common form of goiters are the adenomata but this has not been the case in this series. Using the Plummer[1] classification of this disease, these cases will arrange as follows:

(1) Non-hyperplastic atoxic 37
(2) Non-hyperplastic toxic 6
(3) Hyperplastic atoxic 0
(4) Hyperplastic toxic 32

In this series there were three deaths, two being in the exophthalmic group or hyperplastic toxic and the third in the non-hyperplastic toxic.

The chief mistake made in these cases is that we do not fully appreciate our patients' intolerance to surgery and should feel our way very cautiously. One should try to underdo rather than take a chance at accomplishing something at a great risk. We should proceed step by step, even if it takes months to accomplish our desired result. I feel there is no line of surgery where actual experience is more valuable and essential for success than in this work.

The actual technical work of the operation is simple with the experienced surgeon, but the preparation of one's cases is most important, especially in the exophthalmic type. The danger is more serious in the non-hyperplastic toxic group, for these patients unless gotten early have irreparable lesions and are progressive in their symptoms, there being no remissions, the reverse being the case in the exophthalmic.

I have attempted to get in touch with my cases to find out their present conditions, but this is very hard to do with many, so I will forgo any report in this regard. Those from whom I have gotten reports as a whole have been cured or improved, and I know only of one death after leaving the hospital, a case in group two, non-hyperplastic toxic, who died about three or four months after her operation from a progressive heart complication.

The physiologic goiter is usually a temporary enlargement of the thyroid seen about puberty and in pregnancy and sometimes during menstruation periods. The enlarged thyroid seems to be more common in this vicinity than formerly, being a very common sight on the streets, especially in women but not uncommon in men.

There is little known about the function of the thyroid, but that it is essential to life and health is well recognized. Children born with insufficient thyroid tissue or its absence are spoken of as cretins (athyroidism) and never develop.

There is a close relationship between the sexual organs and the thyroid, such as enlargement of the thyroid at menstruation and during pregnancy. It is often noticed by obstetricians that, when there is an enlargement of the thyroid, there is less tendency to albuminuria and eclampsia. The use of thyroid extract is often curative in the vomiting of pregnancy. Experiments on animals of the removal of the thyroid gland during pregnancy is usually followed by albuminuria and insuffiency of urine. Opitz[10] and Weil[11] claim that sterility may be due to some disturbed function of the thyroid.

Plummer's classification mentioned above seems to embody all the pathologic conditions which we have in the enlargement of the thyroid and appeals to me as the most simple. Acute and chronic inflammations are not included in this classification nor the malignant goiter, which I am intentionally omitting.

Group (1), non-hyperplastic atoxic, includes the simple goiter, that of adolescence and pregnancy. They may well be classed as medical goiters, as they are rarely surgical and usually recover spontaneously. Iodine given cautiously in these cases is possibly of most benefit, but there are many remedies recommended. The only call for surgery would be for the cosmetic effect, or to relieve pressure.

South and Boarders[8] report that clinical experience regarding the iodides in the simple goiter demonstrates there is a class of patients who often received great benefit from their judicious administration in some form. On the contrary, cautious physicians empirically hesitate to prescribe large doses to patients with severe cases of hyperthyroidism for fear of increasing the symptoms. It is a well known fact that some patients are very susceptible to them. Berg has reported several cases, receiving full doses of iodides, who rather suddenly developed the symptoms usually noted in hyperthyroidism.

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*Read before Spokane County Medical Society, Spokane, Wash., May 12, 1920.

"After a few weeks skillful administration of potassium iodide the external swelling will gradually disappear. Should the patient, while under a course of it, experience any quickening of the pulse, a rapid loss of flesh, palpitation of the heart, a dry cough, restlessness and loss of sleep and, in certain cases with an increase of appetite for food tho the swelling shall undergo diminution, it will be necessary to intermit the medicine for some days and afterward resume the use of it when the health and safety will permit." (Medical Lexicon).

In these goiters which presist it might be well to remove them for fear of after trouble. The repeated physiologic enlargement may lead to a permanent enlargement which is possibly due to a repeated irritation and increased blood supply. The endemic goiter which occurs in certain regions is also included in this class. This goiter we also see in young people.

There are two factors which all have agreed upon as to the etiology of the endemic goiter; first, the relation of drinking water and, second, a special susceptibility of some thyroids to certain influences.

One of the older theories and one that was accepted for some time was that of Bircher[2] who believed the changes in the thyroid gland were due to toxic material which he took to be a chemical of a colloid nature and was associated with the water of the so-called goitrous wells and streams which nearly always spring from certain of the older geologic strata. This water originated or passes thru certain organic sediments deposited in these layers. When examining recruits in the military service, Bircher noted that certain groups of individuals from certain districts showed enlargement of the thyroid gland. After the war he investigated these districts and noted the relation to the drinking water. He also observed in a neighboring town the great difference in the prevalence of goiter on either side of the stream which ran thru this town, people on the right bank having eighty per cent. goiter while on the left side only two per cent. The water supply was obtained from different sources. By changing the supply of the high goitrous district and obtaining water from the other side of the stream, the goiter incidence was reduced to two or three per cent. He found that these so-called goiter wells or streams had their origin in certain geologic strata as mentioned above. His son, Eugene Bircher, carried on animal experiments, especially with rats and found, by feeding them upon drinking water from the so-called goitrous wells, he was able to produce an enlargement of the thyroid glands in these animals.

The second theory is that of McCarrison[3] who worked in the region of the Himalaya Mountains in India. He made extensive investigations in a goitrous district and came to the conclusion that the thyroid changes were due to toxic substances of infectious origin and that the chief seat of the infection was to be found in the intestinal tract. His experiments are convincing. He was able to produce an enlargement of the thyroid gland by feeding fecal matter from goitrous people to animals. He also fed to humans the precipitate on Berkfeld filters, which was obtained by filtering water from goitrous wells, and produced thyroid enlargement, being successful also in curing certain cases by the use of intestinal antiseptics, as thymol, salol, etc. He speaks of several cases of enlarged thyroid which were caused to disappear by operative procedure on intestinal conditions, especially in Lane's kinks, etc. One remarkable case which he reports cured by this means was a severe case of exophthalmic goiter. This hypothesis of McCarrison is supported by Lane[4] who believes that the goiter both simple and exophthalmic has been cured by short circuiting the large bowel.

Marine, who has done a great deal original work on the thyroid, believes the simple goiter is often associated with the lack of ability of the body to get iodine or assimilate the same and that the thyroid gland hypertrophies to compensate for this condition.

Group 2. Non-hyperplastic toxic goiter is a continuation of group 1 which has become toxic, causing constitutional symptoms. It is very difficult to diagnose this condition from the hyperplastic toxic or exophthalmic goiter. Clinically the symptoms are in many respects similar. Plummer[1] has brought out some very important points. He says that it is possible that exophthalmus may be associated with non-hyperplastic toxic goiter but if so it is so rare that it must be considered accidental. In this type the cardiac toxins seem to predominate, while in the exophthalmic the nervous toxins predominate, and the symptoms in the former resemble the cardiovascular complex, resulting from alcoholic, leuetic, septic and other well known toxins.

In these cases we do not have the rise and fall in severity of symptoms as in pure exophthalmic but symptoms are constant, and with it usually go irreparable myocardial changes. These cases to my mind are more serious and dangerous, unless gotten earlier, than the exophthalmic goiter. There is nothing to be gained by preparatory ligations. Rest in bed and digitalis will do more to prepare them for operation than any thing else. There is nothing permanent to be gained by medication. These late cases should be handled very carefully and if far advanced should not be operated upon.

Mayo[7] states simple goiter which has resisted treatment and encapsulated adenomas are in most instances best treated by the removal of the diseased portion of the gland, with preservation of its better portions. If the diseased part is not removed, such glands will later in life expose the individual to a serious menace, since the degeneration which follows in an average time of about fourteen years may be of such a character as permanently damage the heart, kidneys and liver. During middle life such degeneration frequently follows the ill advised use of iodine; the severity of the toxic process places these patients on a par with the severe types of exophthalmic goiter. Plummer has shown a great similarity in the damage to the essential organs of the body, such as the heart, kidney, and liver by various forms of toxemia.

In exophthalmic goiter, however, the essential condition identifying it from all other toxemias is the parenchymatous increase of the thyroid. Exophthalmos occurs in no other systemic condition. The staring eye (Stellwag) and the widening of the palpebral fissure (Dalrymple) may occur with other toxic myocardial lesions, especially that of the advanced Bright's disease.

Group 3. Hyperplastic toxic is an exophthalmic goiter pathologically without symptoms, of which I have seen none, Mayo Clinic reports 0.8 per cent. of this condition in their large number.

Group 4. Hyperplastic toxic or exophthalmic goiter. Up to the present time there are no definite causes of this condition known. Plummer and Wilson have both shown that there is always a true hypertrophy and hyperplasia and an increase in the cell activity of the gland. If this change is not present, they do not regard it as an exophthalmic goiter. They further claim that this is the only and constant condition found in the gland. Much has been contributed on this subject by Kocher, Mayo, Crile and Ochsner.

Exophthalmic goiter is essentially a disease of chronic character, presenting exacerbations and ameliorations of symptoms extending over a period of months or years. After the first year the gland often undergoes a regression.

Crile[5] holds some very scientific theories on the subject. Wilson[6] has done a great deal of work on the pathology of the exophthalmic goiter and claims that the pathologist can not only diagnosis the disease but from the microscopic picture estimate with about 80 per cent. accuracy its stage and with 75 per cent. accuracy its severity.

The medical treatment for the condition is limited to the simple goiter, such as those of adolescense, pregnancy and the endemic goiter, if they have not presisted too long. I do not mean that other forms can not be helped to a degree by medicine, diet and rest for unquestionably they can. I have never seen statistics published of medical treatment in these cases with their results. It is usually true, that like the gastric and duodenal ulcer cases, these people have usually passed thru several courses of medical treatment before coming to surgery.

The secret of success in thyroid surgery, especially in the exophthalmic type, is to use careful judgment as to what, when and how much to do. We should never try to rush or hurry this work, emergency operation in exophthalmic goiter never being called for.

Surgery should never be attempted during acute exacerbation, but the time of election should be when the patient is improving. It may be necessary to keep these patients in bed, using sedatives for a long while. The use of ice compresses to the cardiac area are of value, later possibly resorting to x-ray, hot water injections, followed by ligation of one or more poles depending upon conditions. In the course of a few days or three or four months it may be advisable to resect the greater part of the gland.

We should not forget foci of infection . All these conditions should be looked for and incidently cleared up as possible causes.

According to Kocher surgery will cure 83 per cent of exophthalmic goiter, while American authors claim about 75 per cent.

NORTHWEST MEDICINE
The Journal of the State Medical Associations of Oregon, Washington, Idaho and Utah.
Devoted to the Interests of the Medical Profession of the Pacific Northwest
Editorial Office, 1011-12 Cobb Building, Seattle, Wash.
JULY, 1920.

EDITORIAL

A CIVIC DUTY.

One often hears criticism directed against physicians on the ground that they fail to take an active part in civic affairs which may be expected from men and women of their education and experience; that, while here and there a physician takes the lead in matters of health and sanitation, the profession as a body is indifferent to questions pertaining to public affairs, in which they are the best posted people in the community in which they live. Anyone will readily recognize that there is considerable truth in such criticism. The busy physician is occupied day and night with professional cares, in distinction from the ordinary business man, whose active duties are confined to the day time and who, if he wills, has time to devote to consideration of matters of public life. Nevertheless, we physicians undoubtedly owe a duty to the public in utilizing our special knowledge in the way of educational and constructive work for the benefit of the state.

These remarks are introductory to consideration of the duty of certain physicians of our states to serve in the coming sessions of our legislatures. For many years representatives of the profession have been elected to one or both houses, but during the period of the war such a demand was made upon our ranks that those remaining at home could not be spared from professional duties to assume legislative services. As a result, in some of our legislatures, as in that of Washington in its last session, there were no representatives of the medical profession, and the committee in the House on medicine and pharmacy had as its chairman a drugless healer, who supervised legislative matters pertaining to questions of health and sanitation for the state. It is reported that bills are being prepared for introduction at the coming legislative sessions in our states of the Northwest by various bodies of disgruntled individuals, which propose to abolish laws enacted to protect the public from various forms of contagion, and intended to maintain the rising generation in condition of bodily health and vigor. If our states are to maintain a parity with others of the union in protecting the health and sanitation of its citizens, laws and regulations must be maintained in accordance with the recognized principles of public health and preventive medicine. To accomplish such it is essential that representatives of the medical profession shall be elected to both branches of our legislatures, who by their advise and influence may promote the enactment of sane legislation along these lines. It, therefore, devolves upon the members of the medical profession to take an active part in the necessary preliminary measures for the nomination and election of physicians qualified for this form of public service. It will entail labor and sacrifice on the part of certain individuals but this duty is demanded from us by the state and the welfare of the public.

THE PORTLAND MEETING.

The meeting at Portland last month was full of interest for all who were privileged to attend. Nature smiled upon it by providing a week without rain which came in abundance before and after. Evidence that the city is to be one of conventions this summer appeared at every hand. Preparations for the great Shriners' assembly were being made with feverish haste, for which great crowds were anticipated. The attendance at the meetings was unusually good, extending to the final session of the last day. This was a period of real medical gatherings, the annual meeting of the Oregon Alumni Association having preceeded this, which was said to be the best attended and most successful in its history. The program posessed the virtue of a few well selected papers, every one of which was of interest to all, regardless of their individual lines of practice. The papers illustrated the necessity of the lantern in these days for the complete presentation of almost any subject to be discussed. Papers read by the members of the society, as well as those by Dr. Hewlett. of San Francisco, and Dr. Case, of Battle Creek, dealt with subjects of present day investigation, which are of vital interest to every educated physician. A satisfactory feature was the discussion which followed each paper presented.

A part of one morning was devoted to the inspection of the new medical school which has been used a sufficient length of time to demonstrate its usefulness, as well as the care with which it was planned and constructed. The laboratory is complete with all the features to be found in a modern medical school, while some are original with this. Dr. Dillehunt, Dean of the Medical Department, is to be congratulated upon the efficient faculty which has been assembled under its auspices. Like many new institutions, it is already apparent that more buildings are needed and more provision for the increasing classes. The ground is already being cleared for the Multnomah County Hospital which is to be constructed adjacent to the medical school. When other buildings in contemplation are constructed they will comprise a real medical center. A visitor cannot fail to be impressed by the magnificent site and the commanding view of Portland and the Willamette valley which is presented from this location. The present success attending the institution will be a permanent memorial to the energy and foresight of Dr. Mackenzie, who worked so persistently and with such energy for its completion as now presented.

THE MEETING AT VANCOUVER.

The Canadian Medical Association held a notable meeting at Vancouver last month. Arrangements were ideal for such a gathering, the meetings being held at the King Edward High School, in a quiet residence district, with suitable accommodations for section meetings and exhibits. The Vancouver General Hospital is two blocks distant where clinics were held each morning. This is a real metropolitan institution, containing 1300 beds with complete modern equipment, with an abundant force of internes and nurses. It compares well in every respect with the big hospitals of the eastern states. The attendance was large and representative of all parts of the Dominion, with a generous attendance from the state of Washington and from Portland. Papers were read by physicians from all the provinces from the Atlantic to the Pacific, besides many members from the United States, including a representative assortment of Seattle and Portland physicians. While a great variety of subjects were considered in the different sections, special attention seemed to concentrate on diseases of the intestinal tract, peptic ulcer receiving particular attention, and goiter, to which a morning session was devoted. This national association holds its meeting so rarely on the Pacific coast that it was a great pleasure to have the privilege of attending it on this occasion.

THE UNIVERSITY EXTENSION COURSE

Under the auspices of the University of Washington a medical extension course was inaugurated four years ago, consisting of a week of medical and surgical lectures by prominent men in the profession connected with the leading medical schools of the East. This summer's course was delivered the last week in June by Dr. Barton Cook Hirst, of the University of Pennsylvania, on obstetrics and gynecology, and Dr. Henry A. Christian, of Harvard Medical School, on nephritis and diseases of the heart. The pleasing personalities of these gentlemen left a warm place for them in the hearts of all privileged to listen to their instructive and entertaining addresses. Since the University of Washington has no medical department, and there is no probability of such for many years in the future, there is no opportunity for a local postgraduate course of study, as is feasible in Portland, in connection with the Oregon Medical School and its efficient faculty. President Suzallo, therefore, in conference with representatives of the King County Medical Society, decided to establish this extension course. It has met with such success and has proved so profitable, as indicated by the attendance during the years of its existence, that the experiment has resulted in an established institution. The number of the registrants this year was the largest on record, being 190 in number, one-third coming from thirty-eight cities and towns outside of Seattle. It is anticipated that the movement will develop into a valuable and permanent post graduate course. It likewise presents valuable social features, by which physicians from different parts of the state can get better acquainted and come in closer contact with the guests from the East.

ANNALS OF MEDICINE

The first number of this publication has been received, dealing exclusively with internal medicine. The supervising editor is Dr. Frank Smithies, of Chicago, with a list of associate editors, including the best known internists in the United States, among whom appears Dr. J. M. Blackford, of Seattle. The issue particularly features the American College of Physicians and American Congress on Internal Medicine, presenting photographs of the councilors of these organizations. Interesting papers are published on important medical topics. About half of the issue is devoted to abstracts of current literature. It will be published quarterly by W. F. Prior Co., Hagerstown, Md. It is printed on an excellent quality of paper, two columns to the page. This is a valuable addition to scientific and medical journalism.

A NEW JOURNAL.

The latest entrance into the medical journal field is that of *The Medico*, edited and published monthly by Dr. Thomas W. Ross, of Portland, Ore. The customary salutatory, explaining the why and wherefore of existence, does not appear in the initial number. The issue consists chiefly of editorial discussion of many matters of local and state interest. The editor deals with these various subjects in his usual trenchant style, for which he is well known. The issue is an interesting presentation of matters of medical gossip and suggests a discussion of medical politics in the future of both local and state interest. The journal will prove an entertaining and enlightening factor in Pacific Coast medical journalism.

MEDICAL NOTES

OREGON.

New Site for Hospital. It is proposed to move the Portland Sanatorium, located at Mount Tabor to a new location. This is an institution conducted by the Seventh Day Adventists. Several locations are discussed in the neighborhood of Hillsboro where it will probably be located.

Grant of Land for Hospital. The city council of Marshfield passed a measure donating several acres of land to the Sisters of Mercy for a large hospital. A petition was circulated protesting this action, altho it was supported by the Chamber of Commerce and two newspapers. The matter is to be decided at a city election.

Medical Wedding. Dr. Arthur T. Blatchley, of Portland, was married on May 29 to Miss Mary Elizabeth Cole, of Forest Grove.

WASHINGTON.

Site for New Hospital Purchased. The Evangelical Lutheran Deaconess and Hospital Association last month purchased half a block on 3rd Avenue and Couer d'Alene Street, Spokane, as a site for its proposed half million dollar hospital. The property includes a residence of sixteen rooms which will be used for a nurses home. It is proposed to soon erect the first unit to contain one hundred beds and costing $200,000.

Plans for Hospital. It is proposed to construct a hospital at Puyallup in connection with the home of the Ladies of the G. A. R. This home is located in the old Ezra Meeker residence. The property contains an abundance of ground suitable for the institution. Subscriptions have been started for the hospital.

Plans for Dope Sanatorium Killed. It was recently proposed by the city health officials of Seattle, that a sanatorium for dope addicts should be established in Seward Park on Lake Washington. It was suggested that they could be utilized to clear the brush and prepare the park for use. The usual protest from citizens of that part of the city resulted in killing the proposition.

A Health Resort Contemplated. It is reported that an institution is to be built on Queen Anne hill, Seattle, to cost $400,000 and to contain 250 rooms. It is to be called a "sanipractorium," and will exploit drugless treatment, synthetic medicines only being excepted. Plans call for a very ornate structure including a gymnasium a swimming pool and the appointments of a first class hotel.

Hope for a Big New Hospital. The Spokane boosters are out to land one of the five proposed government hospitals for wounded soldiers, which will cost about $2,000,000, requiring a site of about ten acres. A committee has been appointed to compile data for locations and to labor for the landing of such an institution.

Will Build Hospital. Dr. A. W. Bridge, of Eatonville, has purchased a site in Morton, where he will erect an emergency hospital. Dr. H. W. Newell, of Morton, will be in charge of the hospital.

Donates a Hospital. Mrs. V. M. Herriman, of Okanogan, has recently given a building to the city to be used for a hospital. It was originally built for that purpose but of late has been otherwise utilized. Improvements will be made to complete it as an up to date institution.

The Drugless Healers Quarrel. There are so many different forms of drugless healers that the ordinary observer is lost in a maze of obscurity when they clash. The state board of chiropractic examiners wanted to curb the board of drugless examiners from licensing another variety of healers who call themselves sanipractic and who, under this designation, encroach on the exclusive privileges of the chiropractic. The judge pronounced a weighty decision to the effect that the protestants had no more authority to discipline the board of examiners than they had to regulate the Industrial Insurance Commission. The doctrines and protests of these various healers are as lucid as Einstein's theory of relativity.

The Lincoln County Medical Society recently held a meeting at Harrington, at which the following officers were elected for the ensuing year: Pres., Dr. J. E. Bittner, Sprague; Vice-Pres., Dr. Morton Myers Harrington; Sec'y-Treas., Dr. D. M. Strong, Sprague; Censor, Dr. George Freen, Reardon; delegate to the state association, Dr. Lee Ganson, Odessa; alternate, Dr. J. E. Bittner.

Measles Epidemic. Last month the Health Officer, of Puyallup, reported the city to be in the grip of an epidemic of measles, one hundred homes being placarded for this disease. It is attributed to some families who neglected to report the disease a few weeks ago.

To Run for Coroner. Dr. Henry Thompson, a pioneer physician of Bellingham, has announced himself as a candidate for county coroner. He served several terms in this capacity several years ago.

Dr. Frederick Epplen, of Spokane, who has recently been sick for a number of weeks with an attack of epidemic encephalitis, has sufficiently improved to be about once more.

Dr. A. P. Hughes of Tacoma who served as first Lieutenant in the medical corps during the war, has located at Montesano, where he will continue practice.

Dr. C. W. Shannon, of Seattle, has received an appointment in the New York Eye and Ear Infirmary, of New York, where he will serve for sometime in the future.

Dr. Paul L. West, of Riverside, has moved to Okanogon, where he will continue practice.

Dr. Appleby, of Waterville, has moved to Kalama, where he will engage in practice.

Medical Wedding. Capt. Max R. Charlton, M. D., formerly of Spokane, now at U. S. Marine hospital at Port Townsend, was married last month to Miss Grace M. Humbleby, of Spokane.

IDAHO.

Converted into Hospital. It is proposed that the old court house at Grangeville be remodeled into a hospital. The hospital is at present located upstairs in a business building which does not afford sufficient room for its business.

Tuberculosis Sanatorium. The Idaho Antituberculosis League met in Spokane last month, where they discussed plans for the new sanatorium to be erected at Sandpoint. New officers of the league were elected.

Dr. J. M. McCall, of Troy, has left that city for San Diego, Calif., where he will resume the practice of medicine.

OBITUARIES.

Dr. A. H. Geischen died at Tacoma, Wash., June 9, 1920, from complications following an operation for appendicitis on May 1. He was forty-four years of age, born in New York City, and was a graduate of the University of Columbia. Previous to the war he practised in Portland. Before the U. S. entered the war he served in German field hospitals, also doing duty in Bulgaria and Constantinople. When the U. S. entered the war he left Germany, and for a time practised in Geneva, Switzerland, before returning to the U. S. In recent years he practised in Livingstone, Mont., and at the time of his death was assistant surgeon at the Northern Pacific hospital in Tacoma.

Dr. Jacob Prinzing, of Nampa, Ida. died May 7, 1920, at Hot Lake, Ore., of acute peritonitis following an operation on the stomach. He was forty-seven years of age, a graduate of the Medical Department of the University of Minnesota in 1901. He was one of the first interns in Mayo Hospital during 1902. He settled in Ontario, Ore., in 1903, where he practiced for fifteen years. In 1917 he volunteered and entered the army service, being located at Camp Lewis, where he received his com- he located at Nampa, where he had established an mission in the medical reserve. After his discharge excellent practice at the time of his death.

CORRESPONDENCE

USE OF ARSENIC PREPARATIONS IN TREATMENT OF SYPHILIS,

TREASURY DEPARTMENT
BUREAU OF THE PUBLIC HEALTH SERVICE
WASHINGTON.

May 12, 1920.

Bureau Circular
Letter No. 219

Medical Officers, U. S. Public Health Service
and others concerned:

Your attention is invited to the extensive exploitation through advertisements in professional journals and otherwise of various arsenic preparations which are not related to the arsphenamine group. The preparations referred to are sold with claims in regard to their value in the treatment of syphilis, which are un-warranted.

In the opinion of this office it is in the interest of all concerned that the subcutaneous, intramuscular or intravenous use of arsenic in the treatment of syphilis be confined to preparations of the arsphenamine group as these agents are of established value and are produced under the regulations of the Public Health Service. The following firms are now licensed the manufacture of arsphenamine and neo-arsphenamine:

Dermatological Research Laboratories, 1720 Lombard Street, Philadelphia, Pa.,
H. A. Metz Laboratories, 122 Hudson Street New York, N. Y.
Diarsenol Co., Inc., Buffalo. N. Y.
Takamine Laboratories, Clifton, N. J.

The Lowy Laboratory, of Newark, N. J., has been granted a license to prepare a stable solution of arsphenamine.

It is not the desire of the Bureau to limit clinicians in the choice of agents of recognized worth but in the case of arsenic preparations, not members of the arsphenamine group, the available evidence indicates that their routine use is inadvisable in the treatment of syphilis. If it is desired to use any of these preparations in a purely experimental way previous authority from the Bureau should be secured. Applications for this authority should be accompanied by a statement as to the composition of the drug including the structural formula and the reason for its use. All information available on the value of the preparation should be forwarded.

H. S. Cumming,
Surgeon General.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

A Textbook on Dermatology. By J. Darier, Physician to the Hospital Saint-Louis, Member of the Academy of Medicine, Paris, France; Honorary member of the American Dermatological association, etc. Authorized Translation from the Second French 4dition. Edited with Notes by S. Pollitzer, New York. Ex-President American Dermatological Association; Corresponding member of the French Society of Dermatology and Syphilography, etc. Octavo. 769 pages. Illustrated with 204 engravings and 4 colored plates, Cloth, $8.50. Lea and Febiger, Philadelphia and New York. 1920.

The first English translation of the scend edition of this work of the distinguished French dermatologist is a very welcome addition to our dermatologic armamentarium. This is particularly so as a book of reference for the general practitioner. The lucid facile description, the emphasis placed on the important, outstanding features of the various dermatoses make it particularly valuable for the busy doctor. The classification scheme is somewhat unique and in the main a valuable one to the specialist, giving him a different slant on some disputed questions.

The author's classification of the erythematosquamous dermatoses and the keratoses, while extremely interesting and valuable as a new presentation of the subject. does not conform to the generally accepted ideas on nosology and tends further to involve rather than clear up the situation, and takes us farther away from the much to-be-desired, uniform international, dermatologic nomenclature. The conception of the "eczematides" and "kerosis" is very attractive, but, if accepted, will necessitate a readjustment of latter day opinions regarding seborrheic dermatitis, and also regarding the question of eczema as a disease entity. But this is a small part of the field, and still open for discussion. The work deserves a place in every practitioner's library.

Crabtree

Arteriosclerosis and Hypertension. With Chapters on Blood Pressure. By Louis M. Warfield A. B., M. D.,F. A. C. P. Formerly Professor of Clinical Medicine, Marquette University Medical School. Chief Physician to Milwaukee County Hospital, etc. Third Edition. 265 pp. Cloth. $4.00. C. V. Mosby Co. St. Louis, 1920.

Warfield's book is too well known to require any introduction. New chapters on cardiac irregularities associated with arteriosclerosis and blood pressure in its clinical application have been added in this edition. Pulsus alternans might have been included among cardiac irregularities with high blood pressure because one may often make a diagnosis in taking the blood pressure by finding the rate of the heart suddenly change, before the radial pulse is short off, in estimating the systolic pressure. No mention is made of the removal of focal infections in the treatment of hypertension. Extraction of abscessed teeth is not uncommonly followed by great relief in hypertension. The author wisely emphasizes the importance of exercise in the treatment of hypertension. Warfield does not apparently recognize essential hypertension as an entity apart from arteriosclerosis. The book as a whole is a very sensible, well-considered treatise on the subject and shows good clinical judgement and common sense.

Winslow

Orthopedic and Reconstruction Surgery Industrial and Civilian. By Fred H. Albee, M. D., F. A. C S. Professor and Director of Department of Orthopedic Surgery at the New York Post-Graduate Medical School and at the University of Vermont. Octavo volume of 1138 pages with 804 illustrations Philadelphia and London: W. B. Saunders Company, 1919. Cloth $11.00 net.

This book contains not only the subject classified as orthopedic surgery but also a great number of conditions due to injuries originating in our industrial organizations. The new field of reconstruction surgery or rather orthopedic-reconstruction surgery is here very exhaustively taken up and very ably described. The operative methods of treatment of bone and joint conditions, diseases and deformities are very thoroly treated. These operative procedures are to a great extent based upon the reconstruction work done in bone conditions confronted with during the great war. This book must be of great value not only to the orthopedic surgeon but also to the industrial and general surgeon.

In the chapter on armamentarium of the surgeon, the author emphasizes the necessity of being thoroly equipped to do fracture work as well as all forms of bone work. Here the various appliances and instruments are enumerated and described. The author describes his fracture-orthopedic operating table, which is very excellent. It is practically a Hawley table with a few changes in adjustments.

Johanson

Diabetic Manual. For the Mutual use of the Doctor and Patient. By Elliott P. Joslin, M. D., Asst. Prof. of Medicine, Harvard Medical School, Consulting physician, Boston City Hospital, etc. Cloth, 191 pp. Illustrated. Second Edition: $1.75. Lea & Febiger. Philadelphia and New York. 1919.

TACOMA CLINIC
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This is an admirable little work. In a way it is almost preferable to Joslin's larger and more technical treatise on the same subject, in that it is so practical and compact. One gets right down to cases and all the details are found for working out the treatment of a diebetic patient. There are given, for instance, five illustrative patients representinging the different degrees of severity of diabetes and all the dietetic niceties are elaborated in extenso for each. In addition there will be found the necessary tables for estimating the required proportion of carbohydrates, protein and fat, and calories in relation to the weight of different subjects. The book treats of just those small details upon which the success of our care depends. While the work may, thru the courtesy of the author, appear to apply more to the patient than physician yet, as a matter of fact, the doctor will be truly grateful for much of the information, which of course he is familiar with but is not. There is no more useful book on diabetes for the physician himself and, after making sure of its contents, he may then somewhat condescendingly permit the patient to avail himself of its—what shall we say—platitudes?

WINSLOW

The Medical Clinics of North America. Philadelphia Number, March, 1920. Vol II, No. 5. W. B. Saunders Co. Philadelphia and London.

Among noteworthy articles are Analysis of Diseases of the Gall-bladder and Ducts, by Rehfuss; and Some Aspects of Diagnosis and Treatment of Cholecystitis and Cholelithiasis, by Lyon. Rehfuss covers the whole subject of gall-bladder disease most satisfactorily in a single lecture, while Lyon describes in detail his interesting experiments in removing bile thru the duodenal tube and making a diagnosis of gall-bladder infection by the finding of pus, various microorganisms and bile crystals. Both Rehfuss and Lyon feel that a diagnosis of gall-bladder infection may be made by the findings in the aspirted bile from the duodenum and this method, tho still in the experimental stage, bids fair to greatly increase our diagnostic means in determining the presence of gall-bladder disease. The two articles on valvular disease of the heart, by Beardsley and Stengel, are of great practical value in diagnosis and treatment and deserve close attention. Mc Crae also contributes an admirable clinical lecture upon causes of low blood pressure. The number is fully equal to the general high excellence of this most practical and useful publication.

WINSLOW

The Surgical Clinics of Chicago. April, 1920.. Vol.4, No. 2. W. B. Saunders Co. . Philadelphia and London. Published Bimonthly. $12,00 per annum.

There is much in this publication that possesses as great value for the physician as the surgeon. Eisendrath's lecture on tuberculosis of the kidney is an example. He goes into all the methods of diagnosis and points out the frequency which tuberculosis of the kidney masquerades as cystitis. The value of the pyelogram and ureterogram is emphasized. The marked irregularities of the calices are among the earliest signs of tuberculosis and deposits of calcium salts in the calices are found in over 20 per cent of cases. The bladder changes seen in cystoscopy are characteristic in advanced cases. Examination of the epididymis is of great service, for tuberculosis of the epididymis is found in a third of the cases of tuberculosis kidney. Again, in the discussion of subdiaphragmatic abscess due to liver abscess, Straus gives a most complete analytic study of diagnosis. He points out the fact that the dirty, waxy pallor is typical liver abscess facies. Almost all amebic abscesses of the liver occur in the upper right lobe. Diagnostic puncture is the only positive indication of subdiaphragmatic abscess but should be followed by immediate operation in case pus is found. It may be done in the mid-axillary space without opening the pleura. The description of this case is beautifully presented in all its details. There are many other clinical cases of great interest and value but lack of space forbids us from further consideration of them other than to repeat that this publication is of as great worth to the physician as the surgeon in the matter of diagnosis and appropriate treatment.

WINSLOW

American Illustrated Medical Dictionary. (Dorland) A new and complete Dictionary of terms used in Medicine, Surgery, Dentistry, Pharmacy, Veterinary Science, Nursing, Biology, and kindred branches; with new and elaborate tables. Tenth Edition, Revised and Enlarged. Edited by W. A. Newman Dorland, M. D. Large octavo of 1201 pages with 331 illustrations, 119 in colors. Containing over 2,000 new terms. Philadelphia and London. W. B. Saunders Company, 1919. Flexible Leather. $6.00 net; thumb index, $6.50 net.

This work is too well known and has been noticed in these columns too often to require further consideration other than to say that several hundred new definitions have been added and many of the decriptions and definitions have been materially amplified. It is one of the most authoritative and convenient books of reference and is in fact absolutely essential for every practicing physician to have at hand.

WINSLOW

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NORTHWEST MEDICINE

The Journal of the State Medical Associations of Oregon, Washington, Idaho and Utah
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ADDRESS

A QUARTER CENTURY'S PROGRESS IN MEDICINE.*

B. L. STEEVES, M. D.
SALEM, ORE.

Someone has said that life should be ideally divided into three periods—twenty-five years of preparation, twenty-five years of labor, and twenty-five years of leisure. The first is a period of anticipation, the second a period of achievement, the third a period of retrospection. It would seem to one who has just completed twenty-five years of practice in the medical profession, the second period of life, that no more fitting honor could crown those years than the one which I at this moment enjoy—that of presiding over this, the state organization of my professional brethren. And to one who feels himself rapidly approaching the third period, when retrospection plays such an important part, it would seem that no more fitting theme could be found upon which to address you than to review briefly some of the advances which have been made in the quarter of a century in which I have been engaged more or less actively in the practice of medicine.

Certain it is that, while there is yet much that is unknown and perhaps some that is unknowable regarding the phenomena of life in its normal and abnormal manifestations, more has been added to our knowledge of the cause and treatment of disease, more discoveries have been made of a startling and notable character and of a greater and more distinct benefit to the race during the past twenty-five years than in any previous century of human history. As a striking example, take the history of a few typical diseases during the late war and during the Spanish American and Civil wars.

Between September 1, 1917 and May 2, 1919, with an average strength of 2,121,396 men, there occurred in the United States army but 213 deaths from typhoid fever. Had the same death rate existed that obtained during the Spanish American war, there would have died 68,164 from typhoid alone or, if the Civil war death rate had obtained, there would have been 51,133 deaths. This shows that no advance had been made in prophylaxis and treatment between the time of the Civil war and of the Spanish American war, the death rate indeed being higher in the latter than in the former, tho this discrepancy was due no doubt to the retention of large bodies of men during the Spanish American war inactive in camp without a correct understanding of the necessary prophylactic hygiene.

The same interesting comparison, showing also the tremendous advancement in the treatment of some other diseases can be made. In the same length of time there were only 13 deaths from malaria. With the death rate from this disease which obtained during the Civil war, there would have been 13,951 deaths, or of the Spanish American war 11,317. This shows probably some advancement in the treatment of this disease between the period of the Civil and Spanish American war and it shows also an almost complete control of it during our late war.

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*President's Address read before the Forty-sixth Annual Meeting of Oregon State Medical Association, Portland, Ore., June 3-5, 1920.

From dysentery there were 42 deaths but the death rate of the Civil war would have produced 63,898 deaths and of the Spanish American war 6,382. When we come to the consideration of pneumonia, however, our comparisons are not so favorable. There were 41,747 deaths from this disease among the American army. With a death rate equal to that of the Civil war there would have been 38,962 fatalities, and to the Spanish American war 6,086. We have not yet come to a complete understanding of this disease, tho the increased death rate during our recent war was owing no doubt to the intense epidemic of influenza which swept over Europe and America.

In the year of my graduation the germ theory of disease was still to a large extent a theory. The specific germ of tuberculosis and of a few other diseases had been isolated but the method of transmission of many diseases and the consequent logical steps to take along the line of prophylaxis were not understood. For instance, the specific germ of malaria was discovered by Laveran in 1880 but it was not until 1898 that the life cycle of the plasmodium was demonstrated and the transmission of the disease traced definitely to the anopheles mosquito. As a result a disease which infected a large percentage of the habitable portion of the globe, to which thousands succumbed every year, and which is credited with having been a powerful factor in bringing about the decadence and fall of the Roman Empire, has been banished from many districts by the draining of low lands and the consequent destruction of the breeding places of the anopheles.

From time immemorial yellow fever had been a plague of tropical countries and in many places like Cuba was always present. Occasionally violent epidemics broke out and the disease would travel as for north as Philadelphia or Baltimore, where severe epidemics have occurred from time to time. It was not until the close of the Spanish American war, when the medical department of the American Army attempted to improve health conditions in Cuba that a commission of American army surgeons was appointed to make an exhaustive investigation into the cause and prevention of yellow fever. Drs. Carrol, Laziar, Reed and Agramonte composed the commission and its work forms one of the most heroic episodes in American history as well as one of the most brilliant in scientific achievements.

No soldier facing the enemy displayed more cool and unselfish heroism than did these men and their volunteer assistants in the investigation and experiments which followed. In August, 1900, the commission began its work by allowing mosquitos to suck the blood of fever patients and later bite normal susceptible individuals. As a result Dr. Carroll, four days after being bitten, became violently ill with the disease and later died. On the 13th of September Dr. Laziar allowed a stegomyia to settle on his hand and drink its fill. Five days later he too was stricken and died after a brief and violent illness. The investigations were, however, continued with the result that it was demonstrated that yellow fever is acquired only by the bite of a certain mosquito, the stegomyia fasciata.

To transmit the disease it is necessary that the insect suck the blood of the yellow fever patient during the first five days of the attack and twelve days are necessary to allow the parasite to develop within the body of the mosquito before it can be again transmitted to a human being. Other species of mosquitos die before twelve days have elapsed and hence are innocuous as carriers of yellow fever. The logical defense, then, against yellow fever is the extermination of the transmitting mosquito by the destruction of their breeding places. This knowledge led to a campaign against the stegomyia which resulted in practically ridding Cuba and our Southern states of the disease and made possible the building of the Panama Canal—a task which the French found impossible to perform, owing to the high mortality among their men from yellow fever and their inability to cope with the disease.

When I began the practice of medicine, diphtheria was one of the most dreaded diseases with which we had to contend. It was not uncommon for whole families of children to be decimated. The specific organism of the disease had already been isolated by Klebs, in 1883, and Loeffler, in 1884, and had been named the Klebs-Loeffler bacillus; and experiments in the toxins were being carried on. Within a year or two the announcement of an antitoxin was made and one of the greatest blessings ever bestowed was conferred upon mankind. By antitoxin diphtheria has been robbed of its terrors and only an occasional first case, not recognized and consequently neglected, terminates fatally.

These are but a few of the notable achievements of medicine in the past twenty-five years, each ranging with the discovery of ether by Morton, of vaccination by Jenner and the discovery of the circulation of the blood by Harvey. To enter into a detailed discourse of the many others would be to trespass upon your patience but I shall briefly mention among the most notable achievements the discovery of the x-ray of Roentgen which has become an indispensable adjunct to the practice of medicine and surgery; the discovery of a prophylactic serum for typhoid fever which rendered a vast army immune; the wonderful advances which have been made in surgery, particularly of the viscera; the discovery of the carriers of bubonic plague, typhus fever and the spotted fever of the intermountain region, which has placed a weapon in our hands for the eradiction of these diseases; and the wonderful additions which have been made to our knowledge of the physiology and function of the ductless glands.

What a record of achievement for two and one-half decades, and how much the sum of human happiness has been increased by decreasing the sum of human misery; and this incalculable addition to human knowledge has been made, not by the osteopaths, hydropaths, chiropractors and christian scientists, but by the scientific physician who has always labored in an altruistic spirit, feeling that his highest reward was found in having conferred some lasting benefit upon the race.

In the light of what has been done in the past twenty-five years we may well ask what will the next quarter of a century unfold. Fortunately, for our peace of mind, we cannot forsee what the future contains, but we can reasonably prophesy that great discoveries will be made upon the threshold of which we apparently now stand. Whatever is possible to accomplish, we have full faith that the medical profession, filled as it is with thoughtful and conscientious and intelligent men and women, will surely perform and keep full pace with every forward movement which shall be made in every department of human endeavor.

ORIGINAL CONTRIBUTIONS

A SURGICAL OPERATION FOR LUMBAGO AND SCIATIC RHEUMATISM.*

N. A. Johanson, M. D., F. A. C. S.
SEATTLE, WASH.

There is a class of patients coming to us with complaint of pains situated in the lumbosacral region and along the sciatic nerve, to which in the past we have had little to offer in the way of relief or cure. These subjects have often so much discomfort that it incapacitates them for their daily occupations during longer or shorter periods.

The condition is always non febrile. The pain may be continuous or intermittent. It may compel the patient to remain in bed, or he may be more comfortable in a sitting posture, or standing and walking about. He may be free from pain for a long period of time and then some motion of the body, either getting out of bed or getting up from a chair, stooping over and lifting something, as turning over an automobile engine, or some sudden twist of the body, may bring the pain on suddenly. The pain may then be so severe that the patient has great difficulty in moving about, and perhaps will be incapacitated in performing his usual occupation for an indefinite period of time. One of my cases was thus incapacitated for two and a half months, during which time he was compelled to stay in bed, as the slightest effort to get out of bed caused excruciating pain in the lumbar region.

The structure of the spinal column is sui generis because of its numerous complicated joints and because of the strong ligaments which embrace the bones on every side, forming a strong and efficient protection for its highly organized contents—the spinal cord and cauda equina.

Motion is limited by the peculiar shapes of the vertebrae and also by the strong ligaments which bind them firmly together. This limitation of motion is also a protection to the nerve elements which emerge from the spinal column between the vertebrae. When this limitation of motion is disturbed we frequently have pain. The limitation of motion may be due to many causes, such as tuberculosis, injury, osteomyelitis, tumors, etc. However, I will not deal with these causes but will confine myself to deformities of the fifth lumbar vertebra of congenital origin with chronic osteoarthritis and ostitis in the lumbar spine.

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*Read before the Seattle Surgical Society, February 1919, and King County Medical Society, Seattle, Wash., March 17, 1919.

It has been a surprise to me how often the fifth lumbar vertebra is found to be defective from congenital malformation in these cases of lumbar and sciatic pain, and also the frequency of ostitis and osteoarthritis in this region. As to the x-ray diagnosis of these conditions, I can do no better than refer to a very excellent paper on this subject read before the King County Medical Society by Dr. J. Howard Snively, wherein he says:

"A faulty interpretation of plates made in the region under discussion is very often due to improper direction of the rays at the time of exposure. Much experimentation has been done to secure positions that would not cause distortion of the fifth lumbar and lumbosacral joint and I believe considerable progress has been made in securing plates that can be reliably interpreted.

It has been known for a long time that a faulty development of the lower lumbar vertebrae and the upper sacral segments is of very frequent occurrence, and you have no doubt observed that most patients who consult you for aches or pain of the spine locate the trouble in the small of the back.

That there is a relationship between these two conditions, congenital malformation and osteoarthritis in the lumbar vertebrae, is no longer doubted by those who have given the subject more than a passing thought. There are many varieties of lumbosacral defects which are quite common, while similar defects in other parts of the spine are never seen or are very rare. The body of the fifth lumbar is very frequently thinner than the other lumbar vertebrae. Often one side is thicker than the other, thus tipping the spine to one side and causing a mild scoliosis, which may become extreme as the condition progresses. The transverse processes are not uncommonly very large and batwing shaped. Sometimes one transverse process will be large while the other is quite small or normal. Occasionally one of these processes will stab the ilium, causing severe attacks of pain, which may be distributed over the whole side, from the upper level of the kidney to the knee. Or the transverse process may be fused with the sacrum.

Again, the third, fourth and fifth lumbar vertebrae will all show lack of symmetrical development, while the fifth, having slipped to one side and pressing against the ilium, causes pressure-atrophy at the point of contact.

In some cases the pedicles of the fifth will be irregular in size and development. Not a few cases show faulty, irregularly developed laminae that have failed to fuse (spina bifida occulta).

The upper sacral segments seem prone to defective and asymetrical development, also exhibiting upper segments thinner on one side, causing tipping of the spine or allowing a fully developed fifth to wedge itself well down between the iliac crests. Failure of the arch to close in the first sacral segment is very common and is often found when no symptoms are present. Many other defects occur.

When we have structures so liable to deformity and so imperfectly constructed as to interfere with neighboring parts, so poorly fitted to each other and in such weakened condition as to make them unfit for sustaining the great weight, physical stresses and twisting forces applied in this location, it is not surprising that the parts in this region are frequently subject to pathologic changes, of which chronic osteoarthritis is the most common to be revealed by means of x-ray. Fractures, syphilis, tuberculosis, carcinoma, etc. do occur rarely and are to be differentiated.

The osteoarthritic changes are like those in other locations, such as absorption of cartilage, irregular atrophy, hypertrophy, lipping, lines of increased density, fuzziness and callus-like masses surrounding the articulations. In early cases thinning of lumbosacral cartilage and fuzziness of joints may be the only findings.

It has been our experience that the sacroiliac synchondroses are remarkably uniform in their development and very rarely show diseased conditions, while displacements occur only as a result of severe trauma where the pelvis is fractured."

I wish to say that only those cases in which we find a definite deformity of the fifth lumbar vertebra, due to congenital defect or changes incident to chronic osteoarthritis should be considered surgical.

In going over the nerve supply of this area we find that the gluteal region and the posterior aspect of the thigh and leg derive their nerve supply from the lower lumbar and sacral segments of the cord. These nerves run down in the cauda equina, emerging from between the fifth lumbar and the first sacral vertebrae, also from the sacral foramina. The fifth lumbar nerve receives a branch from the fourth lumbar. These nerves now unite to form a common trunk. Close to the union a number of branches are given off; the superior gluteal, the gemillus, superior and inferior, branches to quadratus, levator ani, sphincter ani, obturator internus and finally the main trunk, the great sciatic.

It is obvious that any deformity of the fifth lumbar vertebra may cause pain along the distribution of the nerve trunks which emerge from between this and its adjacent vertebra. Furthermore, the junction of the fifth lumbar vertebra and the sacrum forms the promontory. This, mechanically speaking, is an angle in the frame-work and such an angle is subjected to more strain than the rest of the frame-work; also in this particular part of the spinal column we have a vertebra articulating with its neighbor above, the fourth; then the third, and so on, a continuous flexibility up the spinal column, which flexibility, due to the intravertebral articulations, tends to distribute strain above and below any given vertebra. Not so the fifth lumbar vertebra articulating below with the sacrum, which is firmly fixed between the two hip bones; hence the lumbosacral articulation is subjected to more strain from this cause, and also because we have an angle at this point, the promontory.

If we have an undeveloped fifth lumbar vertebra, it is easy to understand how, when this part is subjected to strain, there may be trouble. The deformity may be very slight. In other words, the amount of deformity which is found does not bear a definite relation to the amount of pain the patient suffers. It is interesting to note in some of these cases how nature is making an effort to induce ankylosis by productive ostitis. The degree of deformity and the degree of ostitis vary greatly in different cases. From x-ray findings by Dr. Snively and myself, it seemed logical that by producing a permanent ankylosis we would assist nature in its effort to cure a congenital weakness.

In a number of cases with lumbar pain we find an apparently normally developed fifth lumbar, but well marked ostitis and osteoarthritis. In these cases a diligent search should be made for focal infection and such focal infection, if found, must be removed.

I have operated on six cases by the method used for tuberculosis of the spine, by inserting a bone graft from the tibia, the graft extending from the third to the first vertebra. The patient is kept in bed for six weeks; a plaster of Paris cast is made after the operation to fit the back of the patient, extending from below the shoulder-blades to the end of the sacrum, covering the back only. This cast is then taken off and allowed to harden and applied later under the patient in bed. The bed should have a fracture-board and a Bradford frame. The patient is kept on his back with the cast under him for three weeks; then the cast is removed and the patient is allowed to turn on his sides. Only one pillow should be allowed the patient. If more pillows are allowed he will invariably prop himself up and get away from the horizontal position in which he must remain for six weeks. All the cases operated upon made excellent recoveries, except one in which we had infection and where the graft was lost. I beg to report the following cases.

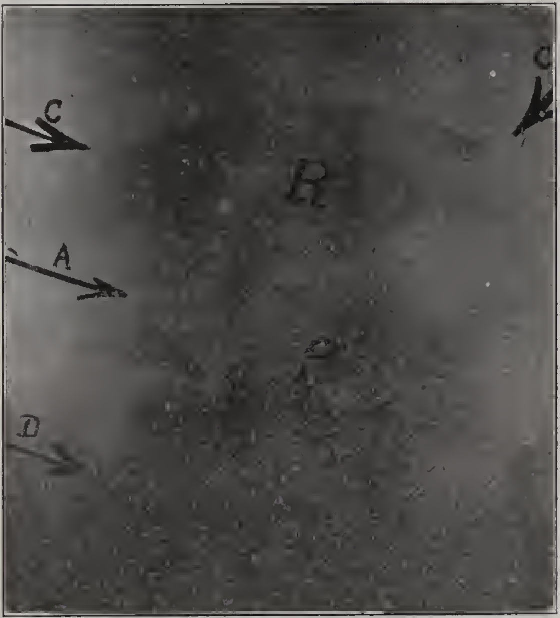


Fig. 1, (Case 1). Osteoarthritis, showing irregular absorption (A), flattening of bodies (B), lipping (C), and fifth lumbar vertebra situated low between iliac crests (D)

Case 1. Mr. R. B. Age 58.

History: Patient has never been sick except for some slight colds. Present trouble started about two years ago with pain in the lumbar region. The pain would disappear at intervals and then return again, sometimes incapacitated him for his usual occupation. Two and a half months ago the pain became so severe in the lumbar region that he could not walk and was in bed at the Port Townsend Hospital during this time. Patient was brought to the Swedish Hospital on a stretcher January 3, 1918.

Examination: A large, well nourished individual. Weight 210 pounds. Height 6 ft. 1 inch.

Tonsils very small. Teeth in fair condition. Heart and lungs negative. Blood pressure 95-145. Urine and Wassermann tests negative.

Patient was unable to get out of bed. Some tenderness on pressure over the lumbar region. The slightest effort to get out of bed or change his position caused severe pain.

Was operated on Jan. 15, 1918. A bone graft from the left tibia was fitted into a gutter, extending from the third lumbar to the first sacral. Patient was kept in bed for six weeks on a Bradford frame and fracture board, after which time he got out of bed and started to walk. Three months after the operation he was free from pain and able to work.

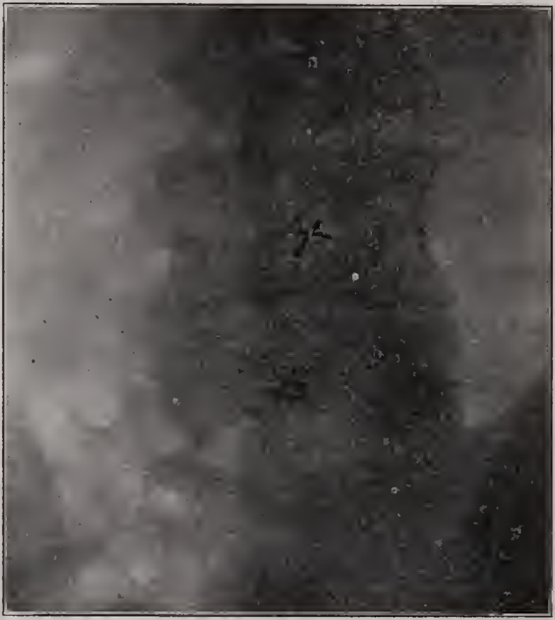


Fig. 2 (Case 2), Congenital deformity of fifth lumbar vertebra, with flattened, poorly formed body. Osteoarthritis between fourth and fifth and of lumbosacral joints. Lipping of bodies.

Fig. 3, (Case 2), The bone splint is shown in position.

Case 2. Mr. A. E. O., Age 46.

History: Past history unimportant. Always had a sore back when young. First noticed pain eighteen years ago when he had to go to bed for two weeks. Fourteen years ago had to go to bed again for two weeks and thirteen years ago was in bed for two weeks. Four years ago had pain in right hip and leg and was in bed for three months. Three years ago had pain in the back ending up with pain in the hip and legs. January 1918 had another spell, lasting three months, in bed. Backache and stiffness. Cannot lift anything. Present trouble started about one week ago with pain in the back. Could not bend, had difficulty in getting up from a chair and could not straighten up without a great deal of pain. The pain radiates down the legs along the course of the sciatic nerve. Has visited many clinics thruout the country for this condition. Has used all kinds of pads and belts without satisfactory results.

Examination: Strong, well nourished individual. Weight 175 pounds. Teeth in good condition. Tonsils normal. Heart and lungs negative. Blood pressure 95-140. Reflexes normal. Wassermann and urine negative.

Was operated on September 13, 1918 by inserting a bone graft extending from the sacrum to the second lumbar vertebra. Was kept in bed for six weeks on a Bradford frame and fracture board. Pains in the back and legs have totally disappeared. Patient was seen seven months after the operation. Has had no recurrence of his former pain and has been able to work every day.

Case 3. Mr. F. J., Age 62.

History: Past history unimportant. Complains of pain across the small of back and along the sciatic nerve of the right leg. This condition has been continuous for two years and has incapacitated him from work most of this period. Has tried all forms of treatment and rest in bed but without relief.

Examination: Thin, undernourished individual. Weight 140 pounds. Tonsils apparently normal. Teeth fair; some pyorrhea. Heart and lungs negative. Blood-pressure 100-150. Wassermann and urine negative.

Was operated on February 14, 1919, by inserting a bone graft removed from the left tibia, extending from the first sacral to the third lumbar vertebra. Patient was kept in bed for six weeks on a Bradford frame and fracture board. Made an uneventful recovery. The pain in the lumbar region has disappeared, but there is some pain in the left sciatic nerve at times.

Patient was found without pain six months after operation. There is no stiffness in the back.

Case 4. Mr. G. D., Age 50.

History: Past history unimportant. Has had a great deal of pain in the back for a number of years. Is unable to bend laterally as it causes a great deal of pain in his back. Pain is so severe for several days at a time that the patient is unable to work or get about.

Examination: Teeth in poor condition. Tonsils small. Heart and lungs negative. Blood-pressure 190-140. Wassermann and urine negative.

Was operated on Jan. 1919 by inserting a bone graft, extending from the first sacral to the third lumbar vertebra. Was kept in bed for six weeks on a Bradford frame and fracture board. Made an uneventful recovery. Has been free from pain ever since the operation and been able to work.

Case 5. Mr. J. R., Age 42.

History: Past history unimportant. Complains of pain in the lumbar region which has been present for many years. Has always had a weak back and trouble in stooping over. During the last two to three months there has been more pain than usual. The pain radiates down the right leg.

Examination: Strong appearing individual. Weight 185 pounds. Teeth in good condition. Tonsils normal. Heart and lungs negative. Blood-pressure 80-140.

Was operated on Jan. 28, 1919. A bone graft was fitted into a gutter, extending from the third inclusive to the first sacral vertebra. Infection followed, graft was lost. Pain returned.

Case 6. Mr. J. A. S., Age 36.

History: All male ancestors died from tuberculosis. Fifteen years ago had some slight involvement of the lungs, moved to Denver on account of it. X-ray picture of the chest showed numerous scars; no active processes.

In September, 1918, first began to have pain in the leg and back, which came on gradually. Several methods of treatment were employed without relief.

Tonsils were removed November, 1918. Subsequently an operation on the nose was performed. There was no improvement from these operations. The pain became more intense but patient was able to attend to business until February 1919, when he got up one morning feeling well but, leaning over and picking up an article of clothing, was suddenly seized with the most intense pain that he had ever experienced. The pain was in the back, radiating down the left leg. It was so excruciating it was necessary to administer morphine. He was in bed for eight weeks. An extension was applied to the leg for several weeks.

DISEASES OF ETHMOIDAL AND SPHENOIDAL SINUSES

J. H. Harter, M. D.
SEATTLE, WASH.

(Concluded)

TREATMENT.

In all acute diseases of ethmoid and sphenoid the treatment should be palliative. By this we mean constitutional treatment, soothing and astringent sprays, breathing of medicated vapors, etc. If an acute ethmoidal abscess forms, it must be incised but, if an exenteration of cells is indicated, this should be postponed until the acute condition has subsided.

The treatment of chronic catarrhal inflammation must be worked out for each case. Some cases improve on liquid iodex spray (iodine in oil). Some seem benefitted by alkaline nasal douches. Vaccine treatment offers possibilities. Some patients find such a discharge very annoying and distasteful and these cases should be operated on.

Chronic suppurative inflammation requires operative treatment. If limited to anterior or posterior cells, these alone should be removed.

The treatment of hyperplastic ethmoiditis and sphenoiditis also must be worked out for each case. If polypi are present with no symptom except obstruction, removal of polypi may bring relief. However, this type of inflammation, if accompanied by profuse discharge, symptoms of hyperesthetic rhinitis or symptoms of nerve disturbance, indicates operation.

Tuberculous inflammation had probably best be treated by general hygenic measures. If these cases are operated on, they quickly recur and with increased virulence.

Mucocoele and pyocoele require removal, including the lining membrane.

Carcinomas and sarcomas indicate wide removal but by the time diagnosis is made many of these cases are inoperable.

Note: We have said that all cases of chronic suppurative inflammation and some cases of hyperplastic and chronic catarrhal inflammation require operation. By this we mean exenteration of ethmoidal cells as far as possible and removal of anterior wall of sphenoid.

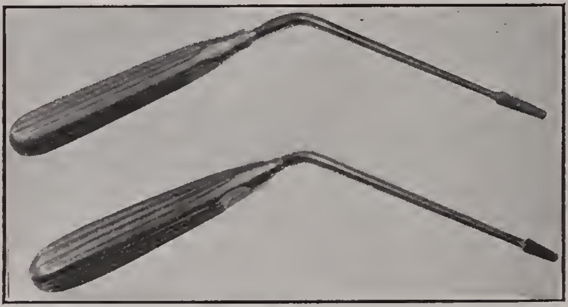
OPERATIVE TECHNIC.

In 1882 Zuckerkandl gave the normal and pathologic anatomy of the accessory nasal sinuses and established the usual relation of the sphenoidal sinus to the optic nerve.[7] Schaeffer, in 1885, was the first to open the sphenoid. He and his followers enlarged the natural opening. Killian, in 1900, called attention to the frequent coincident involvement of the posterior ethmoids and possibility of opening the sphenoid thru the pars ethmoidalis. Hajek demonstrated that best results were obtained by resecting both pars nasalis and pars ethmoidalis. It is interesting to note that important surgical anatomy of sphenoid is only thirty-eight years old and the operative procedure only thirty-five years old.

The exenteration of ethmoidal labrynth is done by many methods and many different types of instruments. The method described below is the one which at present seems best suited to the writer's needs. Local anesthesia with patient in sitting posture is preferred. General anesthesia makes the work quite difficult because the vasa are congested, giving rise to brisk bleeding and consequent obscuring of operative field. With local anesthesia and patient in sitting posture there is usually enough shock that the operative field is almost free from blood. No preliminary sedative is used. Cocaine solution 20 per cent. with one-third the amount of adrenalin chloride solution, is applied to the nasal aspect of ethmoid and sphenoid by means of a small cotton applicator. Especial care is taken to apply this to the two points of emergence of the nasal sensory nerves (vide supra). This is repeated every four minutes up to four applications. Operation is not begun until twenty-five minutes after anesthesia is started. It is very important to note beforehand whether the nasal septum will allow space for proper inspection and for manipulation of instruments. If the septum anteriorally deviates markedly to one side, it is a most conservative measure to do a preliminary submucous resection.

Polypi if present are removed by Knight's or other similar forceps. The middle turbinate is removed by Ballenger's knife or by nasal scissors and Knight's forceps. The bulla ethmoidalis is entered by a curette and working forward and backward from this, keeping the field always clearly in view and frequently using the probe, the cells are exenterated one by one, much as one does a mastoid operation. The superior mesial wall is left standing, until all the upper ethmoidal cells have been removed. This guards against damaging the cribriform plate. The lamina papyracea can usually be easily detected by its smoothness and hardness. However, great gentleness and care must be used in superior posterior portion of this, as perforation here is extremely easy and dangerous. This method is not spectacular nor speedy, but has factors for safety which recommend it.

If the posterior ethmoids have been removed, thus exposing the sphenoidal face, the ostium can usually be found. This may be enlarged by Faraci forceps or Sluder's hook knife. If the ostium is not easily found, the sphenoidal face may be penetrated in the upper portion by Sluder's knife and this opening enlarged by the same knife and biting forceps. With suitable biting forceps (Faraci, Hajek or Dentlenk) the anterior wall of the sphenoid can be removed down to where the shelving edge of the sphenoidal floor meets the anterior wall. This is too thick for any knife, and the shelving conformation together with its thickness makes it impossible of removal by any biting forceps. Dr. R. C. Plummer remarked the ease with which Halle removed this portion of the anterior sphenoidal wall by means of electrically driven burrs. This led to my idea of hand burrs and rasps with angular handles. These have proved very satisfactory, for with them the anterior wall may be removed flush with the floor. This gives excellent drainage and makes the postoperative care of sphenoidal cases almost nil.



Rasp and burr for removing lower portion of anterior sphenoidal wall. Length of shaft 12 cm. Distal end of cutting portion is smooth with diameter 3 mm. Proximal made by V. Mueller and Company.

If after exposure of the sphenoidal face the ostium cannot be found and there occurs difficulty in penetrating the anterior wall, the writer deems it proper to stop the operation at this point. Then, after healing of the posterior ethmoidal area occurs and with a dry unobscured field, the removal of anterior sphenoidal wall can be done with ease and safety, whereas at time of first operation, hemorrhage or possible disorientation might introduce an element of danger.

At time of opening the sphenoidal sinus a culture is taken but absolutely nothing is done to the lining mucosa. We know that the lining of this sinus rarely shows marked pathologic change, and that if given proper drainage it shows great recuperative powers. Also there have been reported congenital dehiscenses of lateral sphenoidal wall which would leave the cavernous sinus unprotected by bony tissue. This should instill into the operators mind a profound respect for the mucosal lining of sphenoid.

Here may be mentioned the method of opening the sphenoidal sinuses via the nasal septum without removal of middle turbinates or posterior ethmoids. The operation is begun as an ordinary submucous resection of nasal septum. The resection is carried posteriorally to where the perpendicular plate of ethmoid joins the sphenoidal crest. This crest is bitten off with strong forceps and both sphenoidal sinuses thus entered. Then by working between the layers of septum, also thru the usual nasal passages, the pars nasalis of anterior sphenoidal wall of both sinuses can be removed. A long thin-bladed Killian speculum is useful. This is a conservative operation, where there is indication for opening the sphenoidal sinuses, with no accompanying disease of ethmoids. The writer has followed the above technique several times upon the cadaver, encountering no especial difficulty but has not attempted it upon the living patient.

In any operation on ethmoidal or sphenoidal sinuses no packing is placed within the nose, unless the amount of postoperative bleeding demands it. The patient is put to bed in the sitting posture until sleeping time, when he is allowed to lie on the side or abdomen with face so placed that the blood will gravitate out of the anterior nares. If continued hemorrhage occurs, a Stephenson intranasal tampon (3x0.5 in.) is introduced along each nasal floor. This is removed within four to eight hours.

The external operation on the ethmoidal and sphenoidal sinuses will not be discussed in this paper.

POSTOPERATIVE CARE. RESULTS.

The patient is given a bland oil for nasal spray and is cautioned against forcibly blowing the nose. At intervals of four to seven days the nasal tissues are shrunken with cocaine adrenalin solution and silver nitrate solution is applied to the granulating areas, especially to the edges of the opening into the sphenoidal sinus. This must be continued until healing is complete.

In chronic catarrhal and in hyperplastic inflammation the complete sphenoethmoidal operation usually results in a cure. The mucosa takes on normal color and there is no excessive secretion, also the neuralgias associated with the hyperplastic process usually abate. In chronic suppurative inflammation, even tho a very thoro operation is done, there usually remains some excessive discharge. Even with this, the general health often improves greatly and symptoms of focal infection disappear. If in any type of chronic inflammation the sense of smell has been lost, this usually returns. The nose and throat do not become dry afterward. On the contrary a pharyngitis sicca usually disappears.

It is well known that, if any accessory nasal sinus becomes infected, the resistance of that sinus is permanently lowered and becomes lower with each reinfection. Thus we note that the operated sphenoethmoidal cases altho cured show with each coryza an acute reinfection often with return of the old symptoms. These infections are treated by applications of weak silver nitrate solutions and quickly subside.

CASE REPORTS.

Case . Mrs. H. L., aged 30 years. Housewife.

History. Two years ago began to have severe frontal headaches most severe in A. M. Was sent to an optician, where glasses +0.5 for each eye were prescribed without relief. Headaches continued and, after attack of influenza six months ago, became very severe. Four months ago had two intranasal operations on left side. Following this the frontal headache gradually disappeared. Six weeks ago began to have some bilateral frontal headache and at intervals a severe steady pain in the occipital region. This pain was most severe in A.M. and at times so severe that patient became dizzy and nauseated.

General Examination. Patient apparently undernourished, nervous, apprehensive.

Special Examination. Right side of nose normal. Left side; large part of middle turbinate, also anterior ethmoidal cells have been removed. Pus streaming down from region of ostium sphenoidale.

Diagnosis. Chronic suppurative sphenoiditis and posterior ethmoiditis (left).

Operation. Aug. 14, 1919. Local anesthesia. Exenteration of posterior ethmoidal cells (left). Removal of anterior wall of left sphenoid.

Progress. Patient considered cured. No nasal discharge. No headache. Seen three times during a coryza. Each time had some headache and some sphenoidal discharge which quickly subsided under treatment.
Refraction Oct. 31, 1919.
OD+1.75 with +.75 at 105
OS +2.50 with +.75 at 105

Have given this patient some general supervision as to diet, regular exercise etc. General health and state of mind are much improved.

Note: It is interesting to observe that the application of silver nitrate solution to the sphenoidal mucosa produces an occipital headache.

Case 2. Mr. J. C., aged 45 years. Lumberman. Referred by Dr. A. T. Wanamaker.

History. Chronic postnasal discharge for at least twenty years. For past four or five years has frequently blown large crusts from left naris. These have a very foul odor. For past year has noted much tinnitus and some deafness.

Note: Patient came because of the ear trouble. The history of nasal trouble was obtained by direct questioning after examination of nose. Stated that he considered the nasal trouble a hopeless case of catarrah. Avoided people because of odor in nose.

General Examination. Negative.

Special Examination. Mucopus in right superior and middle meati. This observed repeatedly. Skiagraph shows frontals and maxillaries clear. Ethmosphenoidal region cloudy. Pharynx slightly dry.

Diagnosis Chronic suppurative ethmoiditis and sphenoiditis (left).

Operatoin. Sept. 13, 1919. Local anesthesia. Exenteration of left ethmoidal cells. Removal anterior wall of left sphenoid. Culture from sphenoid shows staphylococcus aureus and streptococcus.

Progress. Case considered cured. No discharge Wide opening in sphenoid. Has been seen recently each month.

Case 3. Mr. R. E. C., aged 46 years. Laborer. Referred by Dr. R. C. Plummer.

History. Has had asthmatic attacks for past thirty years. About twenty years ago noted purulent discharge from both sides of nose. Both the nasal discharge and asthma have gradually grown worse. Sense of smell usually absent. General health is poor.

General Examination. Patient is thin and sallow. Has asthmatic breathing. Heart and lung examination is negative.

Special Examination. There is foul pus in both middle and superior meati. More profuse on the right. Polypi springing from region of anterior end of right middle turbinate. Marked pharyngitis sicca. Skiagraph shows both antra cloudy, both frontals questionable, ethmoids and sphenoids cloudy. Blood: Wassermann negative.

Diagnosis. Chronic suppurative pansinusitis.

Operation. Nov. 20, 1919. Local anesthesia. Exenteration of ethmoidal cells. Removal of anterior wall of both sphenoids. Frontonasal ducts enlarged by curved curette. Nasoantral wall below inferior turbinates removed by curette. Culture from sphenoids showed staphylococcus and pneumococcus.

Progress. Antra irragated a few times until clean. Frontals—no discharge.

There has been at all times since operation a slight amount of mucopurulent discharge from nose. This comes from a few orbital ethmoidal cells. Was seen during one acute coryza with both sphenoids discharging profusely. This was quickly controlled by treatment.

General health is greatly improved. Asthma has about disappeared. Sense of smell is normal. Has gained from 143 to 168 pounds since operation. When first seen, patient looked like an advanced case of pulmonary tuberculosis. In fact he had been treated during the past two years for this supposed trouble, altho tubercle bacilli were never demonstrated in the septum. He is now of ruddy color, in apparent good health and has been working for about two months.

Case 4. Mrs. E. P. D., aged 50 years. Supervisor of teachers in public schools, Seattle. Referred by Dr. Wanamaker.

History. Three years ago began to have pain in left eye, also pain in neck, shoulder, right arm and hand each time she took cold. About this time noted that with each cold there was profuse discharge from left naris. Went to several physicians here to see if there was any association between the nasal condition and the pain in eye, neck, shoulders and arm and was told that there was not. Became discouraged and went to New York City, one year ago, to a specialist in E.E.N. and T. Was treated there three times weekly for four and one-half months. Came back to Seattle and was quickly as bad as ever. Left eye aching a great deal. Neuritis in arm has been so severe that patient would faint.

General Examination. Elderly lady in apparent good health.

Special Examination. Mucopus in left middle meatus and slight amount in left superior meatus. Skiagraph shows slight cloudiness in ethmosphenoidal area, frontals and maxillaries clear.

Diagnosis. Chronic suppurative ethmoiditis and sphenoiditis. Vidian neuralgia.

Operation. Nov. 8, 1919. Local anesthesia. Removal left anterior ethmoidal cells. After healing of this area it was easily determined that posterior cells also were discharging.

Dec. 23, 1919, local anesthesia, exenteration of left posterior ethmoidal cells. Removal anterior wall of left sphenoid. Culture from sphenoid showed staphylococcus, short chain streptococcus and pneumococcus.

Progress. Following last operation, neuritis and pain in eye entirely disappeared. In early part of February patient had moderate attack of influenza but the operated area was not reinfected.

This sphenoid was opened before the hand burrs were being used and the opening was rather small. This has been difficult to keep open and patient is having slight neuritis again. This case will be reopened in the near future.

Note: This patient had been treated in such a variety of ways without any one suggesting operation, that it took her two months to decide whether she really ought to have this operation. During this time she had other skiagraphs taken of her sinuses and had numerous consultations with other physicians.

Case 5. Mr. A. G. E., aged 34 years. Business man. Referred by Dr. Wanamaker.

History. Has had excessive mucoid discharge from nose since ten years of age. Two years ago had treatments of nose extending over three months. Turbinate was removed on left side and some cauterization done on right side. Discharge is about the same as before, and is practically all postnasal.

General Examination. Patient is under weight. Coughs some. Is of nervous temperament.

Special Examination. Most of left middle turbinate and some anterior ethmodial cells have been removed. Mucoid discharge from postethmoidal and sphenoidal area. Skiagraph shows frontals and maxillaries clear, ethmosphenoidal area questionable.

Diagnosis. Chronic catarrhal ethmoiditis and sphenoiditis (left).

Operation. Dec. 13, 1919. Ether anesthesia. Posterior ethmoids removed. Removal of portion of anterior wall of sphenoid (left side).

Note: Patient insisted on general anesthesia. Considerable bleeding occurred at time of operation and for this reason the sphenoidal opening was not enlarged as much as usual.

Progress. The ethmoidal area has healed. A small opening to sphenoidal sinus remains in lower third of anterior wall. There is a slight sphenoidal discharge.

Note: We believe that under local anesthesia the anterior wall of left sphenoidal sinus should be thoroly removed. On account of the patient's general nervousness we have thus far refrained from reoperation.

Case 6. Mr. C. H., aged 43 years. Shopworker.

History. About three years ago began to have much sneezing and discharge from left naris. Used to sneeze until he would faint but such attacks are less frequent and less severe than formerly. For past year has had occasional large crust from nose. Postnasal discharge wakens patient frequently at night. Hoarseness frequently and voice husky most of the time.

General Examination. Patient quite nervous, appears underweight.

Special Examination. Marked polypoid degeneration of left middle turbinate. Mucoid material in left superior and middle meati. Skiagraph shows frontals and maxillaries clear. Hazy sphenoidal region. Blood. Wasserman negative.

Diagnosis. Hyperplastic ethmoiditis and sphenoiditis (left).

Operation. Dec. 31, 1919. Local anesthesia. Exenteration left ethmoidal region. Removed anterior wall of left sphenoid. Culture from sphenoid showed pneumococcus and small slender gram-positive bacillus.

Progress. Patient considered cured. No nasal discharge. Sleeping well. No hoarseness. Says general health is much improved.

Case 7. Mr. F. F., aged 56 years. Baker. Referred by Dr. G. W. Swift.

History. Polyps in nose for past twenty years. Had them removed five times, last time being five years ago. For past four months has had pain and tenderness in right cheek. For five or six months has had almost constantly complete obstruction to nasal breathing. Has much discharge from nose. Has had asthma for many years.

General Examination. Large robust man. Heart greatly enlarged. Asthmatic attacks frequently.

Special Examination. Large and small polypi in both sides, springing from region of middle turbinate. Slight tenderness over right antrum. Much thin mucopus in both nares. Skiagraph shows right maxillary cloudy, left clear; both frontals clear; ethmoids cloudy; sphenoids questionable. Irrigation of right antrum gave repeatedly a small amount of foul pus. Septum deviates markedly to right.

Diagnosis. Hyperplastic ethmoiditis (sphenoiditis?) bilateral. Chronic suppurative maxillary sinusitis (right).

Operation. Dec. 18, 1919. Exenteration of ethmoidal labrynths. Middle turbinates not distinguishable. Polypi present within ethmoidal cells.

Jan. 7, 1920, Luc-Caldwell operation (right).

Jan 15, Removal anterior wall of left sphenoid.

Feb. 5, Submucous resection. All work done with local anesthesia.

Progress. Patient breathes freely thru nose. There remains a slight amount of mucoid discharge. Right antrum remains clean. Asthmatic attacks much improved but still has one occasionally.

Case 8. Mr. D. C., aged 50 years. Laborer.

History. For past twelve years has had much postnasal discharge. There has never been any odor to discharge. Sense of smell is usually absent but is present at intervals. Nasal breathing is always free, and there is no pain about nose or eyes. General health is fair. Three blood Wassermann tests have been negative.

General Examination. Negative.

Special Examination. Mucopus in both superior meati. This reappears quickly if cleared away. Mucosa over ethmoid appears thickened and vasa are dilated and tortuous. Marked pharyngitis sicca. Skiagraph shows frontals and maxillaries clear. Cloudiness of ethmoids and sphenoids.

Diagnosis. Hyperplastic ethmoiditis and sphenoiditis.

Operation. Jan. 24, 1920. Local anesthesia. Exenteration of ethmoidal labrynths. Removal of anterior wall of both sphenoids. Many small polypi present within ethmoidal cells. Culture from left sphenoid showed staphylococcus aureus and streptococcus.

Progress. Patient is considered cured. No nasal discharge. Sphenoids widely open. Sense of smell present. Condition of pharynx much improved.

Case 9. Miss I. D., aged 23 years. Nurse. Referred by Dr. Wanamaker.

History. Since age of six years has had much postnasal discharge. This has become worse in past six years. No odor. No headaches. Nine years ago had nasal polypi removed from both nares, also had more polypi removed three years ago. Eighteen months ago had double Luc-Caldwell operation. Has occasional attacks of laryngitis.

General Examination. Negative.

Special Examination. Mucopus in both superior meati, more on the right side. Polypi beneath right middle turbinate. Pharyngitis sicca present. Irrigation of antra negative. Skiagraph shows frontals clear, maxillaries, ethmoids and sphenoids cloudy.

Diagnosis. Hyperplastic ethmoiditis and sphenoiditis.

Operation. Mar. 9, 1920. Exenteration right ethmoidal labrynth. Removal anterior wall of right sphenoid. Culture from sphenoid showed gram-positive diplococcus and gram-positive bacillus.

Note: There is marked deviation of nasal septum to left, so that submucous resection will be done before operating upon left ethmoid and sphenoid. No conclusions as to final result can be drawn at present.

Case 10. Mrs. C. M. S., aged 55 years. Practical nurse. Referred by Dr. Wanamaker.

History. About twenty-two years ago had nose injured by falling on it. Following this, had much difficulty in nasal breathing and a large amount of postnasal discharge. Two years ago had a submucous resection of nasal septum and since that time nasal breathing has been improved. The discharge, however, has increased. For fifty years has been subject to severe occipital headache which always comes on at night.

General Examination. Negative.

Special Examination. Both nasal passages narrow and small. Polypi in both middle meati and in right superior meatus. Some thin mucoid discharge present from superior and middle meati. Skiagraph shows frontals clear; maxillaries, ethmoids, and sphenoids cloudy. Irrigation of antra negative.

Diagnosis. Hyperplastic ethmoiditis and sphenoiditis.

Operation. Mar. 5, 1920. Local anesthesia. Exenteration of ethmoidal labrynths. Removal of anterior walls of both sphenoids. Culture from left sphenoid showed staphylococcus aureus, and streptococcus. Operation of too recent date to draw any conclusions as to results.

REMARKS.

This paper presents nothing new. Material has been borrowed from any available source and as far as possible credit has been given the original author. If in some instances this has not been done, we beg leniency.

This report of operated cases is, we realize, somewhat puerile. These cases deserve accurate observation and record. In the future we intend as a routine to have pre- and postoperative records of visual fields and visual acuity.

A special technique is now being used for taking cultures from the sphenoidal sinus. A metal tube about 5 mm. in diameter is placed so that the lower edge is directly over a portion of the sphenoidal opening. A sterile applicator can then be passed along the bottom of this tube directly into the sinus without contamination from the general nasal mucosa.

The microscopic pathology of both soft· and bony tissues of this region is interesting and should be more generally studied and known. The chronic inflammations of ethmoidal and sphenoidal sinuses have furnished a large quota of little understood and hence greatly mistreated cases. The sphenoidal inflammations accompanied by severe headache have often been classed as migraine or simple headache and mistreated as such. Legions of these patients with chronic postnasal discharge have been consigned to that semi-hopeless diagnosis of "catarrh."

These cases deserve our best endeavors. They are often difficult to diagnose and even after diagnosis difficult to cure. Many of these cases lead a wretched existence because of foul nasal discharge, constant hawking and spitting, septic absorption, referred pain, etc. Therefore, we believe justifiable any effort to correlate our knowledge on the subject, or to record accurately the treatment given and results obtained in this difficult group of cases.

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PLASTIC AND COSMETIC SURGERY OF THE FACE*

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I have often heard the statement made—usually in fun—that beauty is only skin deep but, since my acquaintance with plastic surgery of the face, I have come to realize that it is only too true. Plastic surgery for cosmetic purposes deals usually with the skin only and not often does it involve the deeper structures. By the application of plastic surgery the deformities of nature, accident, disease and age are removed and the smooth, plump, rotundity of health and youth replace the wrinkled, hollow, drawn appearance of advancing years and illness.

Whenever I see a group of people I am struck with the fact that there is offered a great field for practising the beautifying and practical, I might say grateful art of plastic surgery. Whenever surgery of the face is necessary, the cosmetic result must always be borne in mind.

Text books on surgery pass the subject of cosmetic surgery without a word and very few say much regarding plastic facial surgery. However, plastic surgery was known to the ancients. Celsus, the great Latin physician and philosopher of the fifteenth century, was the first to practice it. He closed irregular defects about the face by advancing the skin which had been dissected from the underlying tissues. Where this did not cover the lesion, an incision beyond either outer border was added, thus allowing greater traction by leaving two semilunar areas to heal over by granulation.

The first plastic surgery for cosmetic reasons was practiced in India. As a punishment for certain crimes in parts of that country the nose of the guilty one was severed, but it was soon learned by the victims that, if the nose were reapplied to the place from which it had been removed, it often grew back in place. Later, when the disfigured one could not secure his own nose, that of some other recent victim was used in its place; and it was found necessary to destroy the noses in order to put a stop to this reconstruction work.

Plastic surgery of the face includes that of all its parts: nose, mouth, ears, eyelids, neck, chin and cheeks. Each one may be operated upon to advantage in appropriate cases. Plastic work about the nose is probably the most common. There are three methods by which total rhinoplasty may be done. By the Indian or Hindu method the flap is made from the forehead. According to the French method the tissues are taken from the borders of the deformity. This is a modification of the original method of Celsus and is usually unsatisfactory. When the Italian method is employed, the flap is taken from some distant member or part of the body. These methods may be combined, as in transplanting a piece of bone under the skin and later forming skin and bone into a nose.

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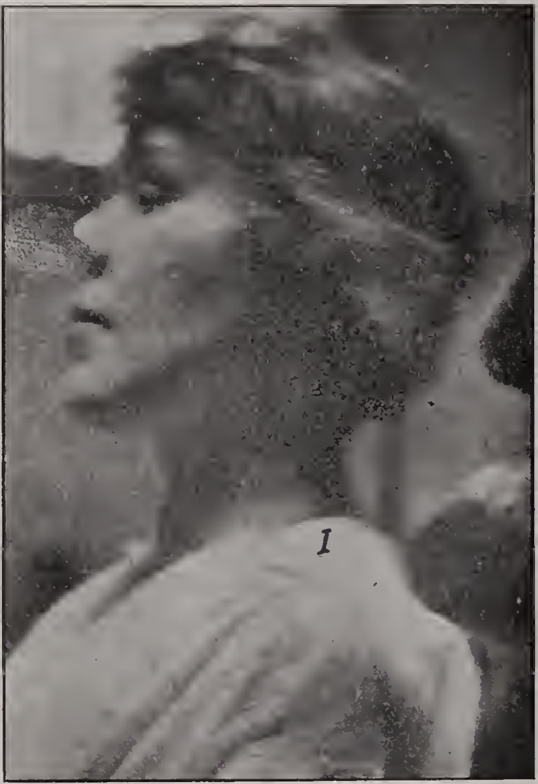

Fig. 1. Note position of inferior border of nose before operation.

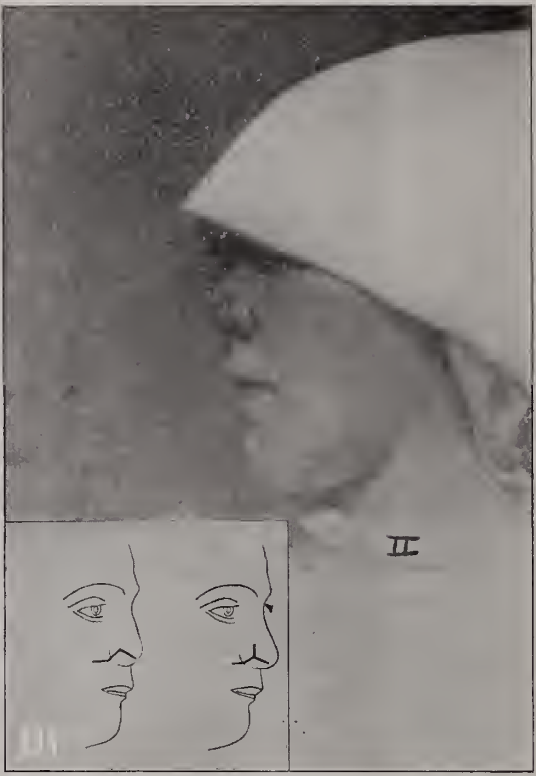

Fig. II. Photograph taken immediately after operation and before dressings were applied. Sutures distinctly seen. Note improved position of nose.
Fig. III. Indicating line of incision and line of suture.

Each case must be studied carefully to decide just what is required and which operation will give the best results. That individuality is necessary is proven by the fact that there are described over sixty different operations for the restoration of the nose. Each operation, on account of the conditions present requiring a little different flap, was given the name of the operator who did the restoration. In doing this work do not try to do too much at one operation, for what might have been a good result may be spoiled by so doing.

It is not my intention to go into details regarding the various operations of facial surgery for the time will not permit, rather to describe briefly a few cases that I have operated upon and chiefly to call to your attention the fact that persons with these cruel deformities (for they certainly are more cruel than the loss of a leg, for instance) can and should be relieved.

I have in mind a woman who consulted me recently regarding her nose which had been destroyed by lupus. This unfortunate woman had not been out of the house for twelve years on account of the deformity which, being so conspicious, was gazed upon by every one within seeing distance, much to her annoyance and shame. In this case the septum is gone and the bony support with it, so that the portion of the skin remaining has collapsed and shrunken, leaving a depression where the nose used to be. There is also an unfortunate complication, in that she has a very large scar on the forehead at the location from which the flap ordinarily would be taken. In this case a piece of bone will have to be grafted under the skin of the forehead in such a way that, when the flap is later cut, it will not include any of the scar tissue. The septum can be made from the remains of the nose.

The first case I wish to describe is that of Mrs. T., age 24 years. When four years of age she was kicked by a horse which left a very marked nasal deformity. Correction of this was attempted by another surgeon three years ago by implanting under the skin of the nose a piece of rib cartilage. This was done by making a transverse incision on the forehead at the root of the nose and tunneling the length of the nose along its anterior border. Then a piece of rib cartilage was pushed down into the tunnel. A suture or two closed the wound on the forehead. This procedure did all that was intended that it should do, namely, it removed the saddle-nose effect almost entirely, but left the inferior border where it had been, pointing upwards. Being of a sensitive nature the stares of people she passed and their often unkind

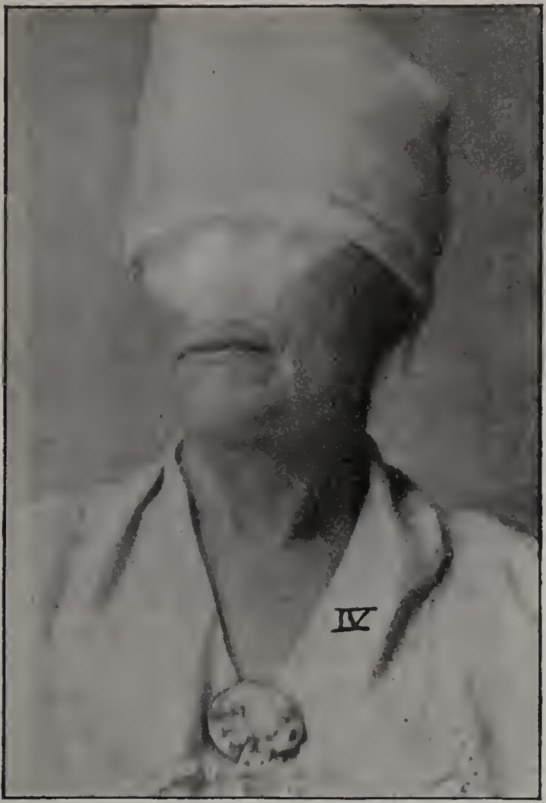

Fig. IV. Before operation; deep wrinkles about mouth are very noticeable.

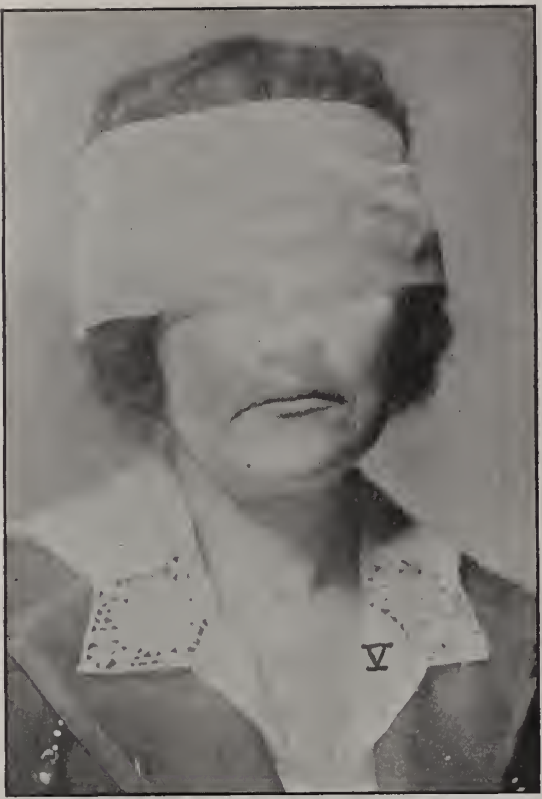

Fig. V. Here is shown youthful appearance resulting from replacing deep folds by natural fulness. Camouflage used is also shown.

remarks were disquieting and annoying; therefore, she desired to be relieved of her deformity.

The first cut (fig. I) is taken from a photograph of this young lady before I operated on her. It is not as distinct as I should have liked, due to the fact that she moved just as the picture was taken. In doing this kind of work it is important that photographs, and casts where possible, be procured as it is surprising how soon patients forget their former appearance when once it is removed from view. All the photographs which I am showing were taken since my realization of the above fact.

Inverted V incisions were made in this case on either side of the nose and extended on to the respective cheek (fig. IIIa). The incisions extended well down to the tip of the nose. There resulted, when the wound was separated, two edges of an angular incision. The edges of the upper V were brought together for about one-half their length and the rest was sutured to the edges of the lower wound. Thus, that portion brought over from the cheek was sutured to the lower segment (fig. IIIb). Before the sutures could be placed it was necessary to separate the skin and adherent structures from the cartilage of the nose, so that the skin could be shifted into its proper position. Considerable swelling of the mucous membrane resulted but this subsided in a few days. Fig. II shows the nose after correction was done. In the cast the nasal orifices are shown of unequal size and shape. This deformity has since been corrected and the young lady is now very proud of her nose.

Probably the most interesting work in plastic surgery is that of removing wrinkles of the face and neck, double chins and such like deformities. The location of the incisions in these cases must be given careful study, as there location varies with each case. A tuck—for such it really is—that would take twenty years from the face of one woman will perhaps add new wrinkles if located similarly in another. For removing wrinkles the incision may be above the hair line, back of the ear, or in a fold in front of the ear. If the incision is properly placed, the edges carefully approximated and just the right amount of skin removed, the result is remarkable. There is a very small, practically unnoticeable scar which, lying in a natural fold in front of the ear, is taken for a fold and not seen.

When placed above the hair line or above the ear the portion of skin removed is located in such a position as to give the desired result and no scar is seen. A section of skin varying from the size of a dime to that of a half-dollar is removed, or it may be several inches longer when necessary.

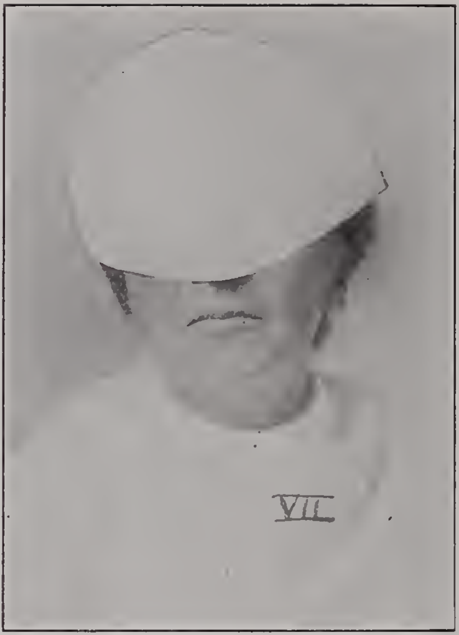

Fig. VII. Observe the disappearance of the lines of age leaving a more youthful appearance. Twenty years were taken from this face. Right side completed. Left side before first operation

This piece is in the shape of an elipse with the ends tapering to a fine point. The wound must always be sutured in such a manner that there is the least scarring and no puckering at the ends. Behind the ear the technic is the same.

When the section of the skin to be removed lies just in front of the ear, the incision is made about one-eight inch in front of the anterior attachment of the ear and extends forward and upward in front in the hair for one-half to one inch and below curves backward beneath the ear. This is shown very clearly in fig. VIII. The edges are sutured in such a manner that the skin of the face is raised, thus eradicating the sagging. As seen in fig. VII the change is very noticeable. Care must be taken that there is no puckering and that the eyelids are not pulled on and crow's-feet produced or that the pull on the cheek does not look unnatural. Make the pull just a little tighter than you expect the face to appear, as there will be some "give." Above all make both sides alike. While it is a fact that the two sides of a face are not exactly alike, be very careful not to accentuate it. Vary the incision to suit the case in hand.

I operate usually in the office, using 2 per cent. novocaine with adrenalin as the anesthetic, injecting along the proposed line of incision with a very fine needle. About three mils (45 minims) is the amount required for each side and the work is done painlessly. Have the scalpel well sharpened and take plenty of time to do the work. Disect off only the skin, being careful not to leave any portion of its thickness nor to cut too deeply so as to sever some important vessel or nerve. The dissection may be more quickly done with a pair of scissors.

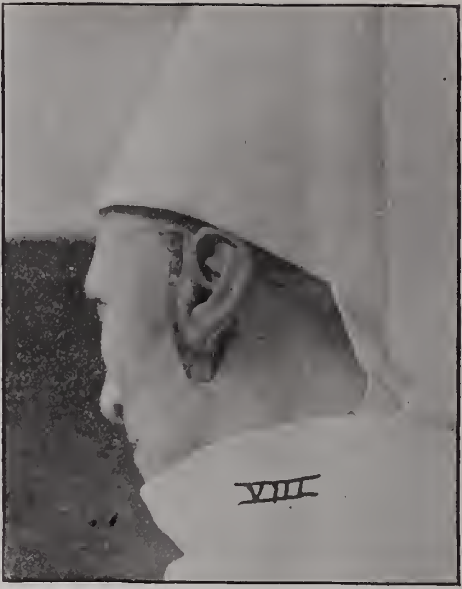

Fig. VIII. Showing the amount and location of skin removed. Photograph taken during operation.

Strict aseptic technic is essential for good results. After cleansing the skin well with soap and water I use Harrington's solution, followed by alcohol. Fine silver wire is used as sutures to take the tension and horsehair or dermal suture with a very fine needle for coapting the edges. Collodion, gauze and collodion or gauze and wax is the dressing used. Remove the stitches in from four to ten days, depending on the condition of the wound and the progress of healing.

One might imagine that the after pain of such an operation is considerable but such is not the case. One woman after having this operation done proceeded immediately to a local department store, where she purchased a new hat suitable to her now youthful appearance, certainly an amusement not indulged in when one is in pain.

When the dressings are properly applied they are surprisingly inconspicuous. Another woman, upon whom this operation was preformed, went home to her husband, mother and grown daughter and not one of these noticed the dressings. The camouflage used is shown in fig. V.

By properly placing the incision and the line of suture the wrinkles and folds in the neck are removed at the same time that the folds in the face are taken out.

Another method that has been used by some to correct defects of the nose and about the forehead, such as habit furrows and frowns, is the injection of parraffin and allied substances. It has also been used to restore the symmetry of the face, to fill hollows of the cheeks due to the removal of malignant growths or when caused by facial hemiatrophy or by congenital sinking in of the cheeks. It has also been used to elevate undue depression at the root of the nose and along its anterior border, for obliterating accentuated nasolabial folds, rebuilding the chin, filling hollows about the shoulders and neck and in fact anywhere about the body to restore contour. It is unfortunate that a method which seems to hold out such promise should prove disappointing. I have seen the results in numerous cases where paraffin has been injected and often the results have not been satisfactory. In fact, I have been importuned a number of times to remove paraffin that had been put in by some one else. The removal of paraffin is a most difficult work and requires the utmost care else disfiguring scars and unsightly depressions result. By injecting normal saline solution minor deformities can be eradicted and there can be no objection to the use of this solution.

Harelip and kindred conditions, while included in the title of this paper, have not been considered because you are all familiar with them.

By means of plastic and cosmetic surgery of the face the following results among others may be obtained: The nose can be made larger or smaller or changed in type; the size of the mouth may also be changed to suit the esthetic taste of the owner; deformities of the ear are made to disappear; a weak chin can be built out and hollow cheeks made plump; wrinkles also yield to the touch of the surgeon; ectropion and other deformities about the eyes may be corrected.

It all sounds very nice, but be careful. Be sure to explain the scarring which, tho very slight and unnoticeable, results from cutting operations. Do not operate on conditions caused by disease while that disease is active. Do not try to do the impossible.

CINEMATIC AMPUTATIONS.*

EUGENE WATSON ROCKEY, M. D., F. A. C. S.
PORTLAND, ORE.

Cinematic amputations were first conceived by Vangetti, who in 1896 carried out his experimental work on animals. He did not do an operation on the human until 1907. Since this time he has not only done many cinematic amputations, but has inspired his Italian coworkers by his enthusiasm until now the Italian medical literature is filled with reports of cases.

The Great War, with its numbers of amputation cases, added a stimulus to this type of operation. The Italians, and later the Germans under the leadership of Sauerbruch, have done most of the operations, the British and French very few. The reports of cases in our American soldiers are limited to half a dozen, and some of these are not encouraging.

By the cinematization of a stump is meant any surgical proceeding which helps to make possible the direct transmission of voluntary movement from the stump to the artificial limb.

The plastic motors may be formed in three ways: (1) Club motors, (2) Loop motors, (3) Motors made by tunneling muscular masses. Of these the last two are to be much preferred. The plastic operation may be done primarily, that is at the time of amputation, or secondarily upon an old amputation stump.

There are three prime requisites for any plastic motor:

(1) It must withstand firm pressure with a painless grip.

(2) It must have sufficient force.

(3) It must have sufficient range of motion.

Tendon furnishes the best means for forming a plastic motor. An antagonistic force is necessary for successful motion. This may be supplied thru a second plastic motor, or mechanically as by a spring.

Cinematic amputations of the upper extremity have proven to be of greater practical value than those of the lower extremity. The rarity of successful cases in our own literature may justify the following report at this time.

Sawyer in lumber mill, aged 37. In October, 1918, received a gun shot wound of left forearm. Amputation just above left elbow next day. Ex-

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*Read before the Forty-Sixth Annual Meeting of Oregon State Medical Association, Portland, Ore., June 3-5, 1920.

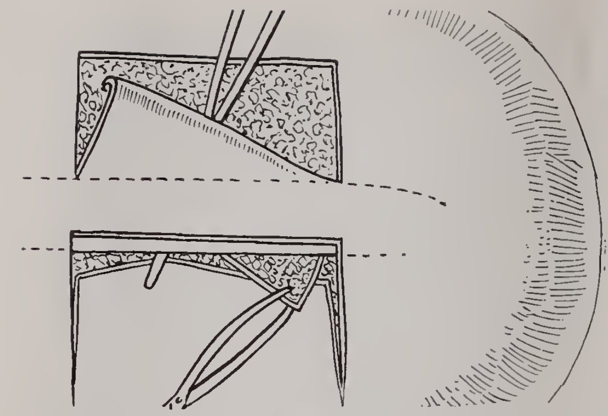

Fig. 1. Showing method of covering loop in biceps tendon with skin flaps.

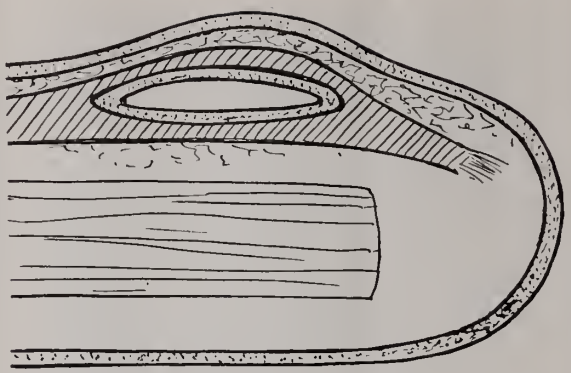

Fig. 2. Sectional view of loop in biceps tendon, showing skin lining.

amined at our clinic June, 1919. Amputation stump had never healed; much pain in stump, keeping him from work. Examination shows amputation just above elbow joint. Stump healed, except for discharging sinus on past surface extending to bone.

Operation June 23, 1919. Excision of sinus tract with curettement of bone.

September, 1919, reports that, altho stump healed by primary union and has not discharged since, pain has continued as severe as before. Examination shows stump well healed. An extremely tender point is discovered at inner border of biceps tendon. This is evidently a neuroma of ulnar nerve. The skin over the posterior aspect of the stump is adherent to the bone.

As an operation was necessary to remove the neuroma, we recommended that a cinematic amputation be done at the same time.

Operation September 25, 1919. Excision of three inches of ulnar nerve, size of cigarette with bulb on end. Amputation of distal three-fourths inch of humerus stump with freeing of adherent skin. Plastic operation, forming skin-covered loop of biceps tendon, according to the following method.

A vertical incision 5 cm. long made at the inner side of the biceps tendon, (figs. 1 and 2). Thru this the neuroma of the ulnar nerve was removed. The end of the biceps tendon, which was imbedded

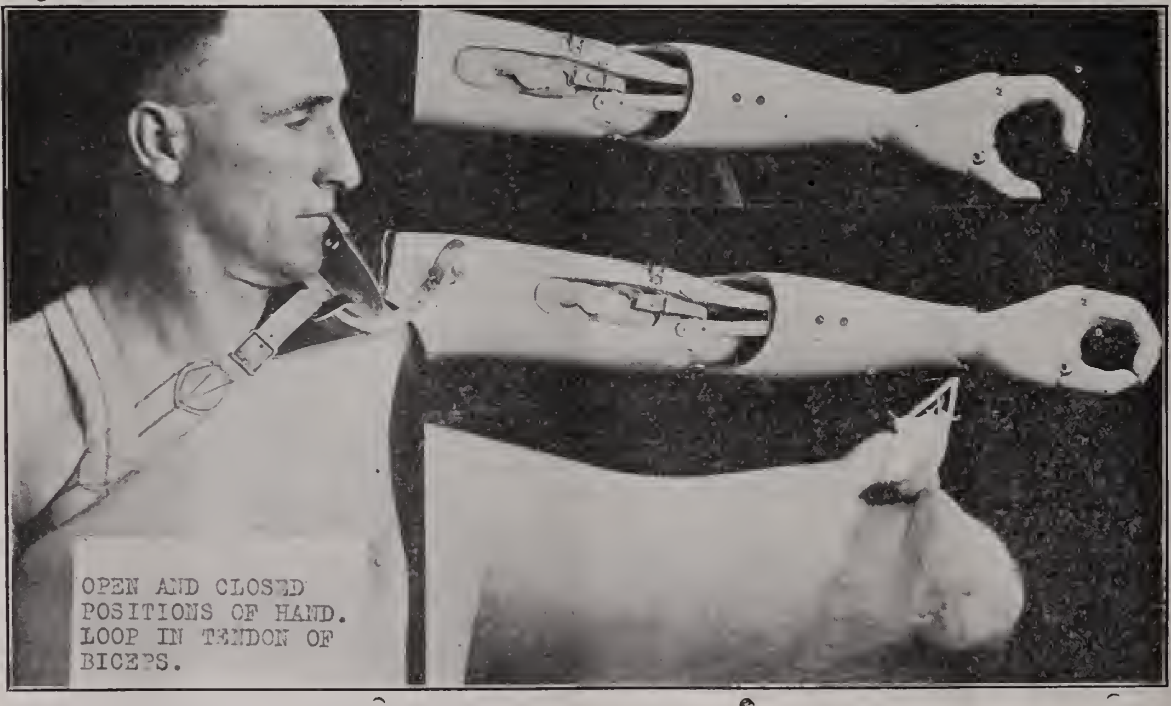

Fig. 3. The biceps loop has a lifting power of 75 pounds, and a range of motion of 2 inches, and is tough enough to stand a hard day's work without inconvenience.

in a mass of fibrous tissue, was freed from the bone, leaving it adherent in front. Thru this a split 4 cm. long was made. A rectangular flap from the front of the arm, starting and ending 1 cm. from the outer side of the first incision, was turned back thru the opening and enveloped the front half of the tendon. A rectangular flap was made inward from the first incision, and drawn outward thru the loop, forming the back wall of the loop. The edges were appropriately joined with fine paraffined silk. The end of the humerus, 2 cm. in length, was amputated thru a posterior incision in the old scar line. This freely mobilized the loop.

Following this operation, there was entire relief from pain, due to the removal of the neuroma. The incisions all healed by primary union, and the skin covered tendon loop soon became very tough and strong. It has a lifting power of 75 lbs., and a range of motion of two inches.

We were very fortunate in having the co-operation of Mr. J. W. Mahaffey, of the Oregon Artificial Limb Co., who made a very satisfactory artificial arm and hand. The forearm is flexed on the arm by the opposite shoulder. The hand is kept open by a spring, and is closed by the pull of the biceps muscle, tranmitted thru a band passed tru the skin-covered tendon loop (fig. 3).

Altho this patient has been wearing his arm but one month, he has already learned to use it very well. He is able to pick up and hold both small objects and large heavy ones. He is a sawyer in a lumber mill, and is again running his old saw, controlling the levers with this artifical hand.

In selected cases it is believed that the field of usefulness of these operations may be extended. Increased earning capacity and the improved morale following the new efficiency should encourage further trial.

508 Stevens Bldg.

Cancer of the Rectum. The possibility of a permanent cure of cancer of the rectum by operation G. W. Crile, Cleveland (Journal A. M. A., July 31, 1920), says depends more on the stage at which the case is presented for operation than on even the most thoroughgoing technic; but maximum of operability, which means a safe operation with the removal of the maximum amount of tissue surrounding cancer, is a possible attainment.

To cancer which involve the lumbar muscles, which penetrate the bladder, which involve the liver, etc., operability does not apply. Death is generally due to infection and to the absorption of the toxins of feces. Among thirty-eight operative cases, Crile has not had a death.

CASE OF ATROPHIED PLACENTA IN A TWIN PREGNANCY.

J. M. Taylor, M. D.
BOISE, IDA.

The following case is reported because of its interest to the general practitioner as well as to the obstetric specialist, as it may explain some of those cases in which masses of tissue are reported as being expelled from the uterus some days after labor.

Mrs. S. B. W., III para, was attended by me in her second confinement July 18, 1918, with normal labor and rapid convalescence. She did not menstruate at all after labor, so was not sure when the next pregnancy began; but estimating from "quickening" thought she was due about Feb. 12. She had no signs of labor until Mar. 12, when labor began abruptly with rupture of membranes, followed by immediate onset of severe pains. Examination showed left foot protruding from vulva and, as soon as preparations could be made, the other foot was brought down and child delivered by breech without difficulty under chloroform. The placenta was expressed by Crede method without difficulty, but the membranes seemed adherent. After ten or twelve minutes massage of the uterus, a flat oval mass 2x7x9 cm. appeared at vulva and was expelled, not attached to the band of membrane still undelivered.

After further massage and kneading of the fundus without results, digital examination revealed presence of some mass in the uterus. By introduction of the hand, the uterus was cleared and a flat, almost circular, fibrous mass, 11 cm. in diameter, was delivered. This proved to be a second placento with only the firm, translucent, fibrous tissue remaining, as tho it had been put under a press and the blood all pressed out. On one surface was the remnant of the amniotic sac with part of the cord attached about the center. This disc-shaped mass was only about 1½ cm. thick in the center and thinned out evenly around the margin. The membrane was continuous with the band of membrane from normal sac. which had not come away and which led to the detection of this mass.

The first mass expelled proved to be a fetus, developed to about mid term, then flattened under pressure, probably following the rupture of the sac and loss of liquor amnii. If the membrane of the other sac had not been firmly attached, this placental mass would have been overlooked and might easily have been the cause of hemorrhage or infection.

The patient had not felt as well during this pregnancy as during previous ones, but there were no definite symptoms to suggest the death of one embryo.

NORTHWEST MEDICINE
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Devoted to the Interests of the Medical Profession of the Pacific Northwest
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AUGUST, 1920

EDITORIAL

THE SOCIAL INSURANCE QUESTION

The relations of the medical profession to the social or so-called health insurance question is a matter of vital interest at the present time in many of our states. During recent years bills have been presented before the legislatures of twelve or more states bearing on this subject, and the probability is that similar measures will come before the legislatures of the states of the Pacific Northwest during their next sessions. Accordingly interest is attached to the paper read by Dr. Frederick R. Green a few months ago before the Michigan State Medical Society, dealing with the attitude of physicians toward health insurance. In considering the history of this movement he shows that compulsory industrial insurance was inaugurated by Bismark, in Germany, in 1853. Lloyd George prepared his social insurance bill in 1910 after consulting with representatives of all interests in any way connected with the subject except physicians. It was put into effect without regard to the views of the men whose services were indispensable in carrying it into effect, due to their own indifference to the whole question under consideration.

In this country the American Association for Labor Legislation prepared the health insurance act which in 1916-17 was introduced before various state legislatures and organizations. The scheme proposed by this health insurance provides for employees earning less than one hundred dollars per month, to receive medical, dental and funeral allowance from a fund of which the employee furnishes one-fifth, the employer and the state each to provide two-fifths. Numerous other details of administration are specified relating to medical and surgical attendance.

The justification for such legislative action is based on various arguments advanced by its supporters. They estimate that three million persons in the U. S. are sick at one time, and that each wage earner loses nine days a year thru illness, the resultant annual wage loss amounting to half a billion dollars; that the wages paid working men are inadequate to pay expenses of sickness and that this burden should be distributed among the employee, the employer and the state.

Dr. Green points out that there are no figures in existence showing the death rate from definite causes, the amount of sickness for any given period or class, or the average income or the average amount of time lost by workmen thru illness in the U. S. All figures published on these questions are mere estimates, based on inadequate and questionable figures obtained in some European city, or from a small district of one of our large cities. No adequate survey has ever been made in any of our states. The California commission, which labored extensively in its report to the legislature, says, "There is practically no scientific information bearing on this important question of unemployment."

In further discussing the matter, Dr. Green emphasizes the fact that this is not a medical question at all, but an economic one, interesting the general public. The title of health insurance is a misnomer, since it does not distribute the loss among those exposed to the same risk, but brings in the employer and the state. The object of the plan is not the maintainance of health, but of productive efficiency, so that the productiveness of the industrial plant may be maintained at the highest possible point. Therefore, instead of being called health or social insurance it should be called a procedure for the increase of industrial production.

He also calls attention to the erroneous statement repeatedly made and accepted by many doctors, that health insurance is inevitable, for which assumption there is not the slightest basis. This result will only follow after being approved by a majority of the people or of the legislature of the state. Equally untrue is the statement that social insurance is the legitimate successor of workmen's compensation, the latter being based on the principle that impairment of the efficiency of the employees is a legitimate charge on industry as is the wear and tear on machinery. The cost of this plan of relieving the employee will be borne by the ultimate consumer, the average citizen, and the tax payer, since the employee will demand increased wages to meet his share of the payment, the employer will add his portion to the ultimate cost of the goods as sold to the consumer and the tax payer will meet the balance.

It is clearly evident that the burden of proof for the necessity for this form of legislation rests with its proponents, and there is abundant evidence that the whole scheme is un-American for the industrial situation in this country. It should be noted that the American Medical Association, at the New Orleans session, unanimously voted in opposition to any plan of compulsory insurance controlled or regulated by any state or the federal government. The position suggested that the medical profession should take is in support of measures to make a thoro and scientific study of the whole situation. There is no demand for hasty action. The average laboring man today receives a greater income than many salaried men of more or less technical training and there is no urgent call for relief of the employee.

THE MENACE OF THE FEEBLE-MINDED.

So much has been published in recent years regarding wide spread feeble-mindedness, with its consequent delinquency and dependency, that no arguments are called for to prove the existence of such conditions in our cities. Earnest afforts to relieve the conditions are, however, of sufficient importance to cause comment. Such steps have been taken the past few months in Oregon under the direction of Dr. C. L. Carlisle, Director of the State of Oregon Survey under the U. S. Public Health Service. He calls attention to the fact that of all applicants rejected from the army draft, 1-25 per cent. were due to mental defects of various kinds. Accordingly the government officials with the approval of those of the state are undertaking a survey to determine the number and identity of the feeble-minded. Every physician of Oregon has received a letter explaining the purpose of the survey, together with blanks to be filled out giving various details of information concerning the cases coming under his observation. This project also involves the assistance of clergymen, lawyers, city and county officials, as well as officials of civic and welfare bodies. Such a survey conducted in all of our cities can accumulate a fund of information of the greatest value in the effort to curb the ill effects of prevailing feeble-mindedness.

It is a well known fact, however, that possession of such information cannot alone remedy the evil. Unless further measures are taken to control the feeble-minded and delinquent and to prevent the propagation of their kind, the ultimate benefit from these efforts will be of no permanent effect. The possession of facts of this character will be a powerful argument before legislative bodies for procuring suitable appropriations for the establishment of needed institutions for the education and control of these unfortunate citizens, most of whom are now neglected and unrecognized. It is to be hoped that the state survey such as is being conducted in Oregon may be later be extended to the other states of the Pacific Northwest.

THE WASHINGTON ANNUAL MEETING.

The annual meeting of the Washington State Medical Association will be held in Tacoma, Sept. 16-17. So long a period will have elapsed since the meetings early in the summer, that it is expected the members and their friends from adjoining states will be so much in the mood for another meeting that a large attendance can be anticipated. The profession of Tacoma is preparing to extend a cordial reception to visiting physicians, for which they have been famous in the past. Instead of holding a three day session as in former years the meeting will occupy but two days. At the end of the afternoon program of the first day, all in attendance, with their wives and families, will repair to the Todd ship-building plant across the bay, where an afternoon and evening of jollity will be enjoyed. In the evening the annual banquet will be held with an entertainment of varied and interesting character. On the evening of the second day an open session will be held of the medical association, combined with the Red Cross. The national officials of the latter organization have been very urgent for this meeting and have promised to send some one of national note to speak before this state meeting. The program appearing below represents most of the papers to be read. Others are in anticipation, including one or more well known men from the East. It is expected that Dr. Crossen, of St. Louis, will attend, as well as one or more others who will be announced later. Final details of the meeting will appear in our next issue.

PROGRAM.

THURSDAY, SEPT. 16.

8:30 a. m. Meeting House of Delegates.
9:30 a. m. General Assembly.
Address of Welcome, Mayor of Tacoma.
10:00 a. m. President's Address.
11:00 a. m. Hyperchlorhydria, Dr. M. M. Null, Seattle.
12:00 a. m. Endocrines, Jos. A. McKee Seattle.
1:30 p. m. Meeting House of Delegates
2:00 p. m. Focal Infections, John T. Bird, Spokane.
2:30 p. m. Encephalitis Lethargica Dr. D. A. Nicholson, Seattle.
3:00 p. m. Findings in 1000 Gastrointestinal Complaints Dr. J. M. Blackford, Seattle.
3:30 p. m. Basal Metabolism, Dr. J. Earle Else, Portland.

FRIDAY, SEPT. 17.

8:30 a. m. Meeting House of Delegates.
9:00 a. m. Cancer, Dr. F. S. Bourns, Seattle.
9:30 a. m. Infections of the Hand, Dr. Homer D. Dudley, Seattle.
10:30 a. m. Surgery of the Right Iliac Fossa, Dr. W. D. Read, Tacoma.
2:00 p. m. Actinomycosis With Special Reference to Course and Mode of Infection, Dr. W. W. Mattson, Tacoma.
2:30 p. m. The Mobilization of Stiff Joints, Dr. Mitchell Langworthy, Spokane.
3:00 p. m. Surgery of the Long Bones, Dr. Major Magnusson, Chicago.
8:00 p. m. Joint Public Meeting of the Association and the Red Cross.

Entertainment will be provided for the wives of attending members. It is expected that additional papers will be read by prominent Eastern teachers.

MEDICAL NOTES

Medical Service Department. The Cooperative Medical Advertising Bureau, of 535 N. Dearborn Street, Chicago, maintains a Service Department to answer inquires from physicians about pharmaceutical and surgical instruments and other manufactured products such as objects of art, clothing or automobiles which may be needed in the home, office, sanitarium or hospital. Our readers are invited to make use of this sevice which is absolutely free. The Cooperative Bureau is equipped with catalogues and price lists of manufactures and can supply any needed information by return mail.

OREGON.

Eastern Oregon District Medical Association will hold its annual meeting at La Grande, September 22. This will be the day before the Pendleton Round-up which will give the visitors an opportunity to see the big show. The program will be snappy and interesting. A good time is being planned for the members and their guests.

Tuberculosis Clinic. The medical society of Deschutse, Jefferson and Crook counties is planning for a free tuberculosis clinic to be held soon at Bend. It will be in charge of a tuberculosis and a baby specialist. It will be for the benefit of cases of undetermined diagnosis with suspicion of tuberculosis, and for children with deformities and mental and physical defects More details will be announced later.

Change of Secretary Contemplated. It was stated last month that Dr. D. N. Roberg, Secretary of the State Board of Health, would tender his resignation in consequence of the inadequate salary. The doctor has been secretary of the Board since 1915.

Temporary Health Chief. Dr. J. C. Abele has recently been serving as city health officer of Portland in the absence of Dr. Parrish. The doctor holds the position of chief of the contagious department of the city Bureau of Health.

Doctor's Office Robbed. Dr. Gertrude French, of the Dalles, had the misfortune last month to have her office entered by some person who abstracted $90 in money and her stock of cocaine. It is presumed that the offender was a "cokehead" looking for "snow."

Physician Injured. Dr. Elmer Smith, of Hillsboro, was painfully injured last month, when his automobile went over a bank, completely demolishing the car. He was rendered unconcious and sustained injuries about the head.

Dr. John M. Wells, of Boston, has been spending the summer in Portland, where he formerly practised twenty five years ago.

WASHINGTON.

Annual Meeting of the Washington Tuberculosis Association. This organization held its annual meeting at Yakima last month. Interesting papers dealing with tuberculosis were read by physicians and laymen. It was stated that there are five county tuberculosis sanatoria in the state, equipped with six hundred beds. These are entirely inadequate to meet the needs in combating the disease. There is a prospect of more county institutions being established. This association is doing a very successful and admirable work in combating tuberculosis in this state.

Whitman County Medical Society, held a meeting at Colfax, July 19. It was one of the most successful in its history. There was a large attendance from the cities of the county as well as from the adjacent cities. Papers were read by several Spokane physicians as well as from Portland. Dr. R. J. Scaife was appointed a delegate to the next meeting of the state association. A censor committee was appointed composed of Drs. John McIntyre of St. John, J. L. Harris of Colton, and J. L. Gilleland of Pullman.

The Snohomish County Medical Society held its monthly meeting at Arlington, July 6. There was a large attendance of doctors from the county with their wives, together with nurses from the Everett Hospital.

Infirmary for the University. Beginning with the fall session an infirmary will be opened at the University of Washington, equipped with five beds and attended by two doctors and two nurses. The building was one formerly belonging to the naval training station which has been renovated for the hospital. It will be in charge of Dr. D. C. Hall, head of the department af physical aducation. Running expenses will be born by apportioning ten per cent of the student body fee to the infirmary account.

New Hospital Planned. At a recent meeting of the Loyal Legion, at Eureka, it was proposed to erect a co-operative hospital for the members of the Loyal Legion of Loggers and Lumbermen. While planned primarily for the members of this organization it will be open to the general public.

Hospital Remolded. Under the supervision of the physicians of the city, the Anacortes hospital is to be overhauled and improved with new furniture and equipment. Miss Frieze, of Everett, took charge of the hospital the first of July.

New Hospital. Dr. E. C. Hackett, of Kelso, is remodeling a large residence which will be equipped as a hospital. A surgery will be installed and a number of hospital rooms provided.

Drive for New Hospital. A drive was held last month to raise money for the Okanogan Hospital, for which about $20,000 was obtained.

Trudeau Society Formed. At Yakima last month the Washington Trudeau Society was organized in honor of Dr. Livingston Trudeau, founder of the Saranac Sanatorium. The officers are: Pres., Dr. Frederick Slyfield, of Seattle Vice-Pres., Dr. R. F. Miller, of Spokane; Secretary, Dr. R. J. Carey, of Seattle; Treas., Dr. L. J. Woodford, of Everett.

Public Health Meeting. About the middle of last month the Whitman County Anti-tuberculosis League held a public health meeting and tuberculosis clinic. Dr. R. G. Carey, of Seattle, supervised the tuberculosis cases. The meeting was well attended.

More Stringent Vaccination Requirements. Last month Dr. H. H. Smith,health offiicer of Yakima, presented to the county health officials regulations requiring either vaccination or strict quarantine of all persons exposed to small-pox. These were presented to the State Board of Health for approval. The state law does not require absolute quarantine for small-pox which is desired by the Yakima health officials.

Standardized Treatment of Venereal Diseases. Last month the Pierce County Medical Society adopted a scheme for standardized treatment for syphilis and gonorrhea. Methods of the treatment are given briefly and in detail, according to the most approved modern method of treating these diseases.

Delegate to State Convention. At a meeting of the Yakima County Society last month, Dr. H. H. Skinner was elected delegate, and Dr. A. J. Helton alternate for the meeting of the state association in September.

Fees Raised. At a recent meeting of the Clallam County Medical Society official recognition was taken of the high cost ofliving. A fee list was adopted and published for the benefit of the public.

Change of Superintendent. Miss Ethel Butts, superintendent of the Deaconess Hospital of Spokane for several years, has resigned in order to enter foreign missionery work.

Wins Foot Race. Dr. O. R. Austin, of Aberdeen, is some sprinter. Last month he entertained his friends by running 100 yards with his 16 year old son. The doctor won in 11 2-5th seconds.

Dr. John Lyman, formerly a captain in the British Medical Corps, and later in the U. S. Medical Corps, has located for practice at Walla Walla.

Dr. F. A Rice, of Everett, was injured last month in an automobile accident. It was stated that his injuries were not serious, altho distressing.

Dr. D. M. Murray ,of Seattle, who served for two years in the army medical corps, has returned home and resumed practice.

Dr. Oliver L. Bonner, recently of Nebraska, has located for practice at Sedro-Woolley.

Dr. W. J. Kress, who formerly practised in Belgrade, Mont., has located at Springdale.

Dr. Leland Bull, who has recently served in the city hospital in Seattle, has located for practice at Ellensburg.

IDAHO.

Money raised for Sanitarium. Thru the efforts of leading citizens of Sandpoint $5,000 is being for the purchase of the Sunnyside tuberculosis sanitarium site. It comprises 100 acres on Lake Pend d'Oreille, nine miles from Sandpoint. The institution is to be supported in part by the State and when completed will cost about $200,000.

Public Health Hospital Crowded. The U. S. Public Health Hospital at Boise, remodeled from an army barracks, has accomodated fifty patients. Further improvements have now increased its capacity. Three tuberculous wards have been shipped from Deming, N. M. These are two story buildings equipped with their own kitchens and dinning rooms.

Advocates All-time Health Officer. It is proposed that Pocatello is to have heatlh officer whose time will be entirely devoted to the work of this office. Dr. W. F. Howard of that city has advocated the matter before the city council and it is thought such action will be taken.

Dr. H. W. Coulter, recently of Seattle, has located for practice at Meridian.

Dr. C. L. Dutton, of Meridian, has moved for practice to Boise.

Dr. J. C. Bartlett, who has recently served in the U. S. Army, has located for practice at Paul.

Dr. H. C. Belknap, formerly of Prineville, has located for practice at Nampa.

Dr. E. R. Wells, of Payette,, was married June 24 at Orofino to Miss Laura Monroe of that city

OBITUARY.

Dr. O. B. Steely, of Pocatello, Idaho, died in that city July 4 as a result of an attack of scarlet fever a year ago during the influenza epidemic. He was born at Bellville, Pa., in 1862. After graduating from the Bloomberg State Normal School he matriculated at the University of Pennsylvania in 1883. For several years, he taught school, being supervising principal of the public schools of Philadelphia. Later he entered Jefferson Medical College, from which he graduated in 1891. After serving a year at the Jefferson Hospital he located at Pocatello, in 1892, where he practised until the time of his death. He was very successful in practice and had a large acquaintance throughout the state. He was twice elected mayor of the city. He was prominent in city and national politics, being at one time the candidate for governor, and lacking only three votes for securing the nomination. He served on the school board for eighteen years, being its president for several years.

REPORTS OF SOCIETY MEETING

OREGON STATE MEDICAL ASSOCIATION.

MINUTES OF THE FORTY-SIXTH ANNUAL MEETING OF OREGON STATE MEDICAL ASSOCIATION, PORTLAND, ORE, JUNE 3-5, 1920

HOUSE OF DELEGATES.

FIRST SESSION

June 3, 8:30 o'clock a. m.

The President, Dr. Burpee L. Steeves, called the meeting to order. The Secretary, Dr. Clarence J. McCusker, kept the minutes of the meeting. The roll call showed 22 members present. The secretary read the minutes of the 1919 meeting, which were approved as read.

Report of Secretary. The secretary stated he had not prepared a written report because he had waited for reports from the various secretaries thruout the state but he had not received all of them. He reported the membership of the Association was about the same this year as last The dues that have been collected have been turned over to the treasurer. The society, known as the Mid-Columbia Medical Society, has evidently gone out of existence, as no meetings had even been held and no reports filed for dues paid. The Central Oregon Medical Society has been organized to take the place of the old Crook County Society. The Clatsop County Medical Society has not sent in any dues and none have been collected since 1917. The question is what to do with societies in this condition. There have been no complaints from any of the other societies in existence at the present time except the Southern Oregon Medical Society, and its troubles will be discussed later on during the sessions of the House of Delegates.

The Treasurer was absent and her report was postponed until a later time.

Report of the Committee of the Council on Medical Defense was read by Dr. Paul Rockey, chairman.

Dr. Bartle reported that the Southern Oregon Society was almost unanimously opposed to paying fees for this purpose into the society. They were of the opinion that the attorney employed by the State Society could not be available for the Southern Oregon Society or for other parts of the state than Portland, and aside from that did not understand what the money was to be expended for and did not understand or believe it was doing that society or its members any good or that it would prove of any benefit to them at any future time.

After a few remarks on the subject by Dr. Paul Rockey and others, Dr. Williamson moved that the matter be laid on the table until the next meeting, at which time a larger delegation from the Southern Oregon Society would be present and the matter could than be more fully and freely discussed. The motion was seconded and unanimously carried.

Committee on Public Policies was asked for a report. The chairman C. J. Smith, not being present, the president said the report would be postponed until a later time.

Special Committee of Five. Dr. W. T. Williamson, Chairman of the Committee, which was appointed in accordance with a resolution passed at the last annual meeting of the House, reported that his committee has done diligent and faithful work trying to fulfill the objects of the resolution that some fitting public demonstration or public testimonial be made or given for the doctors who had gone into the service of their country during the war, in many cases giving up their practice and leaving their families and homes. The subject was fully discussed and investigated from all angles and after much thought and inquiry the committee decided that it was impracticable to do anything and that it would please the greatest number better if nothing were done, and that was the final conclusion reached. The matter was again before the House of Delegates.

Motion was made and seconded that the report be accepted. Motion was carried.

Committee on Entertainment. Dr. M. B. Marcellus, chairman, reported various features of entertainment provided for the members present and their families, and gave directions as to how to carry out the program, which met with applause. On motion the report was accepted.

The President announced that the house was declared a nominating committee to make nominations for officers of the Association for next year, and asked for a report at the next meeting.

On motion duly made and seconded the meeting adjourned until 8 o'clock a. m., June 4.

SECOND SESSION

June 4, 8 o'clock a. m

President Steeves called the meeting to order. The secretary, Dr. Clarence J. McCusker, kept the minutes of the meeting. The roll call showed 17 members present. The secretary read the minutes of June third, which were approved as read,

The chairman appointed the following committee on memorials and resolutions to report tomorrow morning: Drs. C. J. Smith, Dillehunt. Fenton.

Communications. The secretary read a communication from N. P. Colwell, secretary of the committee on the betterment and standardization of hospitals of the A. M. A. Dr. Dillehunt stated that Dr. McDaniels had held meetings and done considerable writing on the subject to the different hospitals in the state. Dr. Whiteside was chairman of the committee, appointed at the request of the American Medical Association.

After a short discussion by different members, Dr. C. J. Smith moved that the secretary be instructed to draw resolutions providing for the dropping of one member each year and the election of a new one in accordance with the communication from Dr. Colwell. The motion was duly seconded and carried.

A communication was read from Dr. F. R. Green, secretary of the council of public health and public instruction, asking that a committee be appointed to attend the next meeting of the State Teachers' Association to ask it to cooperate with the Medical Association to promote better health in the public schools.

Dr. Williamson moved that such committee be appointed by the chairman, which motion was carried. The chairman announced he would leave the appointment of this committee to his successor.

A resolution was read by the secretary from the Southern Oregon Medical Association, regarding the attitude of the State Industrial Accident Commission, signed by Dr. A. C. Seely, as follows:

"WHEREAS, the State Industrial Accident Commission of the State of Oregon does, under its ruling and authority in administering the compensation law of the State of Oregon, require injured persons and patients to go to Salem to be examined and treated by physicians and in hospitals designated by said commission; and

WHEREAS, this practice in many instances subjects the patients to needless discomfort and loss of time and the State of Oregon to needless expense, in many instances deprives the patient of his home surroundings and takes him away from the members of his family; and

WHEREAS, said rulings and authority reflects upon the ability, dignity and professional standing and conduct of every local physician within the State of Oregon, and also deprives him of the practice and emoluments to which he is justly entitled; and

WHEREAS, said rulings and authority is not only inimical to the best interests of injured persons but to the tax payers of the state as well; and

WHEREAS, the rulings adopted and authority exercised in connection therewith does not carry out the true legislative intent of said Workmen's Compensation law and is not for the best interests of the State of Oregon, now, therefore, be it

RESOLVED, that the Southern Oregon Medical Association in regular annual meeting assembled at Roseburg, Oregon, this 11th day of May, 1920. does hereby protest and excepts to the rules and regulations adopted by the State Industrial Accident Commission and authority excerised by it, and declares the same as autocratic, unnecessary, arbitrary and unfair; and be it further

RESOLVED, that the multiplicity of bureaus of red tape be eliminated and that rules and regulations be inaugurated by said Industrial Accident Commission of the State of Oregon which will carry out the true intent and purposes of the compensation law and be for the best interests of injured persons and the people of the State of Oregon. It is hereby further

RESOLVED, that the secretary of this association be and he is hereby authorized and directed to forward copies of this resolution to the Governor and to the State Industrial Accident Commission, and also transmit a copy thereof to the State Medical Association of Oregon."

Dr. E. B. Pickle of Medford explained that the resolution was brought out by the action of the medical officer of the Commission requiring a patient at Grant Pass to go to Salem and submit to their examination, and asked him to remain there for several weeks and have some chiropractor give him treatments and hot water applications and the like, when the local physician was not consulted and when the patient could ill afford to go to this expense. Also followed the circular letter sent out by Dr. Dillehunt.

Dr. R. B. Dillehunt explained the establishment of the physiotherapeutic methods employed by the State Accident Commission, and said in justice to all he thought the medical officer of the commission should be given an opportunity to explain the attitude and work of the commission before the matter was finally passed upon.

After further remarks by Drs. Williamson, C. J. Smith, Pettit, Bartle, Stearns, and others, and Dr. Kuykendall, who expressed the belief that the whole matter had been perhaps misunderstood, a motion was made by Dr. Williamson and duly seconded that the matter be laid on the table until tomorrow afternoon at 1:30, when it should be made a special order, and that Dr. Thompson, Medical Officer of the State Accident Commission, be invited to be present and explain the attitude of the commission. The motion was carried.

A communication from the University of Oregon Extension Division on the subject of the Oregon State Survey of Mental Defect, Delinquency and Dependecy had been received by the secretary, and without objection the same was ordered filed.

as each member of the association had received copies of it.

The secretary announced that he had received communications from the Klamath Falls Association protesting against the $3.00 fee for medical defense in the state association. Inasmuch as this brought up the whole question of the fee for medical defense, Dr. Paul Rockey was asked to again read his report and explain the same.

Dr. E. B. Pickle, of Medford, explained the attitude of the Southern Oregon Society and after a prolonged discussion and explanation which was participated in by various members of the house, a motion was made by Dr. Kuykendall that this matter be laid on the table for one year so that the different societies could become more familiar with the objects of and the workings of the method of medical defense. The motion was unanimously carried.

Thereafter nominations were in order and the following men were nominated:

President: C. J. McCusker, Portland; G. L. Boyden, Pendleton; A. H. Ross, Eugene.

First Vice-President: B. A. Cathey Portland; C. H. Newth, Philomath.

Second Vice-President; H. J. Clements, Salem; S. H. Sheldon, Portland.

Third Vice-President: R. H. Wellington; N. E. Winnard, Lane County.

Treasurer; C. N. Moore, Portland; J. E. Kane, Portland.

Secretary: Raymond A. Watkins, Portland; R. H. Wellington, Portland.

Councilors: M. B. Marcellus, of Portland; C. Stuart Menzies, Portland; Hugh Mount, Oregon City.

Delegate to the A. M. A.: J. A. Pettit, Portland; R. B. Dillehunt, Portland.

Alternate: Robert Benson, Portland; R. S. Stearns, Portland.

Thereupon a motion was made to adjourn until 1:30 p. m. in the Hall on the second floor.

THIRD SESSION

June 4. 1:30 o'clock p. m.

The meeting was ralled to order by the chairman and the minutes were kept by the secretary.

After the secretary read numerous communications from members of the Southern Oregon Medical Society, Dr. Pickle made a short explanation of the position of that society in respect to the resolution asked to be adopted in reference to the State Industrial Accident Commission of the State of Oregon.

Dr. Thompson, of that Commission, explained the physiotherapy methds and institute adopted and organized and in practice by the Commission. Thereupon Dr. Williamson moved that the whole matter be referred to the Council, which motion was unanimously carried.

The House of Delegates then adjourned until tomorrow morning at ten o'clock.

FOURTH SESSION

June 5, 8:30 o'clock a. m.

President called the metting to order and the secretary kept the minutes of the meeting. Roll showed 24 members present. The secretry read the minutes of the previous meeting of June 4th, and they were approved as read.

The treasurer thereupon read the report for the year, and the same was referred to the auditing committee.

The committee on resolutions reported as follows:

WHEREAS, medical men, altho coming in daily contact with sickness and death, find it necessary to pause to note a fallen member of our profession; and

WHEREAS it is fitting that at each annual meeting of the Oregon State Medical Association suitable recognition be made of the passing of any of its members; and

Whereas, during the past year we are compelled to announce the death of Kenneth A. J. Mackenzie and J. H. Bristow, of Portland, and Jacob Prinzing, of Ontario, therefore, be it

RESOLVED, that the Oregon State Medical Association, now assembled in Portland, be called upon to stand momentarily for the adoption of these resolutions, in memory of the deceased members above mentioned; be it further

RESOLVED, that the secretary of this association be instructed to spread this resolution on the minutes of the Society.

(SIGNED) C. J. SMITH
RICHARD DILLEHUNT
RALPH FENTON

The president announced that it was in order to nominate a successor on the board of Northwest Medicine to take the place of Dr. Kenneth A. J. Mackenzie, deceased. Thereupon the following members were nominated:

Dr. A. J. Baird, who stated he could not serve and was excused.. Dr. William House, but as he was already engaged as associate editor, he was excused. Dr. E. B. McDaniels, who asked to be excused. Dr. E. A. Sommers, who asked to be excused. Drs. E. B. Pickel and N. W. Jones, who remained as nominees.

Dr. C. J. Smith moved that the election of officers be postponed until after the reading of the first paper, which motion was seconded and carried After the papers by Drs. Norman Pease and I. C. Brill, the election of officers was proceeded with as follows:

Drs. Barbee and Neal were appointed tellers. After the election the president announced the following result:

President-elect: Dr. Clarence J. McCusker, of Portland.

First vice-president: Dr. B. A. Cathey, of Condon.

Second vice-president: Dr. S. J. Clements, of Salem.

Third vice-president: Dr. R. H. Wellington, of Portland.

Treasurer: Dr. Jessie McGavin, of Portland.

Secretary: Dr. Raymond E. Watkins, of Portland.

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Members of Council: Drs. George S. Whiteside and Hugh Mount.

Delegate to the A. M. A., Dr. J. A. Pettit; alternate, Dr. Richard B. Dillehunt.

Dr. E. B. Pickle was elected Trustee of Northwest Medicine.

Thereupon, after the completion of the scientific program, motion was made to adjourn, which was carried.

C. J. McCusky, Secretary.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

A Manual of Physical Diagnosis. By Austin Flint, M. D. LL. D. Eighth Edition Revised. By Henry C. Thacher, M. S., M. D., Asst. Professor of Clinical Medicine. Columbia University. etc., etc. Cloth 362 pp. $3.00. Lea and Febiger, Philadelphia and New York, 1920.

In this little book which covers the physical diagnosis of chest diseases chiefly the importance of a reliable physicial examination is emphasized, since the tendency now-a-days is to rely too exclusively on the laboratory evidence of disease, as shown by x-ray, electro cardiograph, polygraph, etc. These are more spectacular but not more important than the older methods of diagnosis and often misleading. One cannot get away from the "eternal verities." When rapid and most important examinations had to be made, without all the newer methods, the lack of expert knowledge of the older methods of physicial exploration was lamentably apparent in the late war. Several hundred thousand men in the French army were wrongly diagnosed as tuberculous, and nobody knows how many were disqualified in all armies on account of hypothetical heart disorders which did not exist except in the brain of the examiner. In this work the attempt is made to point out the significance of physical signs and the proper methods of examination of the chest. It is a good work in enforcing in simple language the more important points in physical diagnosis but might be amplified to advantage in many parts.

Winslow.

Pharmaceutical Bacteriology. By Albert Schneider, M. D., Ph. D., Professor of Pharmacognosy, College of Pharmacy, University of Nebraska. Second Edition Revised and Englarged with 97 Illustrations, 441 pp. Price, $4.00. P. Blakiston's Son & Co., Philadelphia, 1920.

The author considers pharmaceutical bacteriology as quite distinct from medical bacteriology, and, therefore, has adopted the work to the practice of pharmacy. The pharmacy student is not required to make deep study of the pathologic changes produced by bacteria, but rather is taught what pharmaceutial and medical substances are liable to attack by bacteria and what changes are produced in the substances; what effect bacterially deteriorated substances may have when introduced into the human body. He is taught to sterilize pharaceutical preparations; to know the relative value of different antiseptics and disinfectants and to standardize them; to know that bacteria develop freely in aromatic waters and like preparations and in carelessly manipulated boiled and distilled water. In other words it is practical and sufficiently scientific. West.

Pathogenic Microorganisums. A Practical Manual for Students, Physicians and Health Officers. By William Hallock Park M. D., Professor of Bacteriology and Hygiene, University and Bellevue Hospital Medical College, etc., and Anna Wessels Williams M. D., Assistant Director of the Bureau of Laboratories of tre Department of Health, etc., assisted by Charles Krumwiede Jr., M. D., Assistant Director of the Bureau of Laboratories, etc. Seventh Edition, Revised and Thoroughly Enlarged. 786 pp. 214 Engravings and 9 full-page Plates, Price, $6. Lea and Febiger, Philadelphia and New York. 1920.

The first edition of this work was entitled Bacteriology in Medicine and Surgery and was intended more for medical practitioners than medical students. Later it was made more comprehensive so as to make it a suitable textbook for medical students. This combining the needs of the practitioner and those of the student in one volume, has made the book one of the most desirable on the subject of bacteriology. The information gained during the influenza epidemic and during the late war has been added to this, the seventh edition of the work. It is an excellent volume. West.

Care and Feeding of Infants and Children. A Text-Book for Trained Nurses, By Walter Reeve Ramsey, M. D. Associate Professor of Diseases of Children, University of Minnesota, etc. Including suggestions, on Nursing, By Margaret B. Lettice, Supervising Nurse of the Baby Welfare Association, St. Paul, Minn. 290 pp. 123 Illustrations. Second Edition Revised, J. B. Lippincott Co., Philadelphia and London, 1920.

This book has been reviewed to cover the most recent practical points in the care and feeding of infants and children. We have always regarded the book as one of the best published on the subject. The reviewer has used it in his lectures to nurses on the diseases of infants and children as collateral reading, and heartily recommends it to the profession. Manning

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ADDRESS

WHAT NEEDED LEGISLATION DO YOU THINK OUR ASSOCIATION SHOULD PRESENT TO THE LEGISLATURE?*

C. P. STACKHOUSE, M. D.
SANDPOINT, IDA.

Both by history and tradition the President of this body of associated physicians is expected to give an address at the annual meeting of the association, and I even find mention of this requirement as a part of his duties, in the By-laws, where "upon some scientific subject" is also jotted down. Whether or not this proves to be a scientific subject will depend upon the results obtained at the next legislature by your Committee on Legislation, with the aid of all the members. I will say that, if all the recommendations made are enacted into laws, there will have been some science displayed by the committee.

I lay no claim to originality. The numerous and oft repeated expressions of dissatisfaction heard on all sides among the practitioners, regarding our present laws, made me wonder if it would be possible to get an adequate expression of opinion from the physicians of the state, and I resolved to make the attempt. To this end a letter of inquiry was sent to every practitioner in the state as shown by the lists available at that time, and upon receipt of the revised list from the office of the Secretary of State last Wednesday, another batch was mailed in order to reach all who were not included in the first list.

The letter, after mentioning the time and place of this meeting, asks "what needed legislation do you think our association should present to the legislature, (1) to promote the general health of the people, (2) institutional needs, (3) protection of the profession?"

A surprising number of replies have been received and the suggestions have been pertinent and timely. Time has not permitted a thoro digest of the material received nor is it probable that the field is entirely covered by the responses at hand, as there were approximately two hundred and twenty-five sent last week, and the magnificent distances afforded in our state would make even immediate response unavailable in time for this meeting.

TO PROMOTE THE GENERAL HEALTH OF THE PEOPLE.

Under this topic the item receiving the greatest individual mention was, *Erection of County Hospitals.* This need was best summed up as follows:

"The public did not take seriously to the question of general public education until they were compelled by taxation to build public school houses, high schools, state colleges and universities. In like manner I do not believe that the general health of the people can be promoted as we would like to see it, until some of the people's tax money can be put into public hospitals and sanitariums, for the proper care of our sick. I believe that a measure should pass our next legislature to give each county in the state the right to secure money by either taxation or bond, for the erection of county public hospitals, and the erection of a county hospital should be made compulsory in every county in the state where there is a population of fifteen thousand or more. Each of these hospitals to be required to maintain a scientific standard, and to be under state supervision. I have very little faith in the possibility of making very great headway against quackery and fraud in the treatment of the sick, until each county has a place where its people can receive proper treatment along improved and scientific lines, in a local county hospital. I do not believe that the financial burden of erecting hospitals in the various communities should be left to physicians or to private charity, but should be made the duty of the entire public, the same as it is the public's duty to maintain their schools and their county court houses."

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*President's Address read before Twenty-Eighth Annual Meeting of Idaho State Medical Association, Coeur d'Alene, Ida., June 10, 1920

The items receiving next highest mention were *Compulsory Vaccination for Smallpox,* (a) in all school children, (b) in all school children before they enter school. *Place Idaho under National Prohibition Law,* thus giving physicians privilege of prescribing alcoholic stimulants. And it is suggested,

"To protect physicians against the unscrupulous prescribing of liquor by reckless physicians, have their state licenses removed on conviction."

Full Time County Health Officer. In this connection it is suggested,

"To inspect all children in the county and recommend proper treatment for any defects or sickness."

County and School Nurses. Along the lines of sanitation the following has been recommended;

(1). Place medical men at the head of our sanitary boards.

(2). Assistant State Health Officers.

"To cover districts of two, three or four counties and put on full time. The present county officers are a joke, being political appointees, underpaid and inefficient."

(3). State wide clean town contest.

(4). Efficient sewage system for rural residents.

(5). Prevent flies.

(6). Regulations to improve health of boys and girls.

(7). Examination of water supplied to all towns, at stated intervals. Under this heading permit me to quote,

"To promote the general health of the people there is nothing more urgently necessary than pure water, pure milk and perfect sewage. Drinking water, whether supplied by a water system or by wells should be examined in the spring when the water is the highest and in the fall when it begins to wane, or be properly chlorinated constantly.

"Our milk supply has not been sufficiently safeguarded against contamination in the past, and while the State Board of Health has done much to improve the purity of our milk supply lately, still the proper standard of purity has not been attained. Correct sanitary methods are not so difficult to establish and maintain in the regular dairies of the state, but to obtain this standard of purity among private families, having a cow or two who peddle their surplus milk to their neighbors, is a far more difficult problem. I think the private vending of milk should be prohibited."

Quarantine draws much comment; (1) More stringent quarantine laws for contagious diseases, including:

"Prosecution of families who do not report infectious or contagious diseases. Make it compulsory to call a physician; if poor, the county or city physician."

Put teeth in quarantine laws.

(2). (a) "Report communicable diseases direct to State Board of Health."

(b) Epidemics should be under the control of the same body.

(3). Proper fumigation.

(4). Optional fumigation after chickenpox and measles.

(5). Strengthening of laws for prevention of tuberculosis. The broadest scope should be given in this matter if we are to stamp out the disease in this state.

(6). Compelling drug stores to carry diphtheria anititoxin.

INSTITUTIONAL NEEDS.

(1) *Tuberculosis Hospitals,*

(a) Provide sanatoria of sufficient capacity to care for the needs of the tuberculous sufferers of the state.

(b) Rush work.

(c) One response brings, "Elimination of one of the proposed tuberculosis sanatoria."

(2). *New Mental Hospital* is recommended. New buildings at Blackfoot is urged by another.

(3). Rural Home for epileptics.

(4). Institutional care for aged feeble minded.

(5). State industrial education for morons.

(6). Institutional care for indigent venereal cases.

(7). Emergency hospital for epidemics, like influenza. The county hospital proposition was included under Group I.

(8). One pleasing suggestion is for "A state post graduate school at Boise, a three months term each year, free tuition to all Idaho physicians."

In general there is recommended,

(a) Removal from political influences in management.

(b) Higher salaries for institutional heads.

Protection of the Profession.

(1). *Standardization of Education.* Almost fifty per cent. of all of the response bring condemnation of the present system of educationl requirements and demand for change. One response is as follows:

"In replying to question No. 3, regarding the protection of the profession, about the only thing to do here is to go before the next legislature and secure a law which will require a uniform educational standard for all kinds and classes of doctors, who hold themselves out as competent to treat the sick. They should be required to all pass the same examination in all the fundamental sciences upon which the treatment of diseases must depend, leaving out the therapeutics of various schools."

"Because of the ease with which all the various cults can enter this state, our communities are being flooded with incompetent and unsafe practitioners, and the public is paying the price. Every physician in this state during the past year has been face to face with most unfortunate and regrettable incidents in their practice, amounting to nothing short of a tragedy, resulting from the teachings and practice of these many incompetents, who are fleecing the public and whose services are worse than useless."

Another says,

"Same educational requirements and same examination before the state board of examiners for *everyone* who practices the healing art in this state state. This will cause some to increase and others to decrease their present educational preparations. But why should a person who is well qualified be obliged to stand a stiff examination, when the person who is poorly qualified only stands a trifling examination or none, and both are turned loose equally to the public?"

(2). *Standardization of all hospitals* is recommended by one.

(3). *Stricter Medical Law.* "The bill introduced in the 14th Session is the best I ever saw. It was taken from the Texas law and would have elevated the medical practice in this state."

(4). A Medical bill that will represent all medical schools.

(5). (a) *Complete Medical Board.* "In the last year, there have been more incompetent medical men admitted to this state than at any previous time."

(b) The "Examining Board to be elected at State Medical Association meeting."

(c) "The Medical Licensure Act should be placed under control of the State Board of Health with such restrictions as will prevent incompetent practitioners of whatever school from gaining license to practice in this state."

Under the question of fees there is recommended,

(a) Uniform fee bill,

(b) Revision of compensation of the State Industrial Accident Board.

(c) Adequate fee for services on insanity commissions.

(d) Five dollars minimum insurance examination fee.

One suggestion which I feel sure we will all endorse is, "Legislation by which the profession could protect itself against rendering gratuitous services to people able to pay for such services."

Regarding midwives, it is suggested,

(a) That they be licensed upon passing an examination in obstetrics equivalent to that required of physicians.

(b) That they be done away with in communities where a physician can be obtained.

"Eliminate the activities of Chinese doctors, druggists and abortionists."

"Exempt M. D.'s from liability occurring from accidents during operations."

"Should oppose further effort of non-medical practitioners to have legal right to sign death certificates."

Make county clerk registrar. It is surprising to me that the vocational tax law is condemned by only one.

A number of replies seem to imply that our present laws are adequate if they were enforced. One says,

"Profession needs no protection, protect the public. Legislate the confidence men out of business. Chiropractors are "confidence men," pure and simple.

"The greatest protection to the profession lies among themselves, more unity, more helpfulness, less knocking; united we stand, divided we fall. Why legislate?"

The subject is a broad one. In nearly every state of the union there has been legislation derogatory to our profession. We should maintain a bureau to cooperate with similar bureaus of other states, and each as individuals should exert his influence upon the individual legislators from his district.

ORIGINAL CONTRIBUTIONS

RECENT ADVANCES IN THE DIAGNOSIS OF HEART DISEASE.*

A. W. Hewlett, M. D.
SAN FRANCISCO, CALIF.

During the past two decades our ability to recognize diseases of the heart has been enlarged thru a number of new diagnostic methods and new studies. Prominent among the newer methods are: (1) the estimation of blood pressure in man, (2) the recording of cardiac activity by means of venous tracings and electrocardiograms, and (3) increased accuracy in determining the size and shape of the heart thru the applicaton of x-ray methods. Among the newer studies are those which have demonstrated the relation of certain infections, especially syphilitic and streptococcic, to heart disease, and those which have to do with that still obscure condition known as the "irritable heart." This last, which cripples but does not kill, constituted one of the major problems encountered by army surgeons during the war and it has, therefore, been recently subjected to intensive study both here and abroad.

In the present paper I shall try to outline briefly how the general problem of cardiac diagnosis has been altered by this more recent knowledge. Changes in blood pressure and cardiac infections will be touched upon very lightly because these have been the subjects of many recent discussions.

SIGNIFICANCE OF CARDIAC MURMURS.

The diagnosis of heart disease is often influenced to an unwarranted degree by the presence and character of murmurs. This is not surprising, for heart murmurs are tangible deviations from the normal and their possible relation to valvular disease always awakens interest. Yet less than half of those seeking advice for cardiac symptoms suffer from valvular lesions and the outcome in such lesions is often determined by the condition of the heart muscle more than it is by the character of the valvular changes.

Furthermore, heart murmurs do not necessarily indicate valvular or other organic disease in the heart. This is particularly true of systolic murmurs. Thomas Lewis, after an extensive army experience, even advises that systolic murmurs be disregarded altogether in cardiac diagnosis. While I am unable to subscribe to this view, I believe that too much importance is frequently attached to the finding of systolic murmurs and I am convinced that Lewis' protest against this will in the end be productive of much good.

Altho less significance than formerly is now attached to systolic murmurs, the significance of diastolic murmurs has not diminished. Whether these orginate at the aortic or at the mitral orifice, they nearly always indicate valvular disease; and the lesions indicated, either aortic insufficiency or mitral stenosis, can never be taken lightly. Diastolic murmurs are of such importance that special care must be taken in order that they be not overlooked.

The murmur of aortic insufficiency is usually loudest in the third or fourth intercostal space close to the left border of the sternum. Auscultation at the conventional aortic area may even fail to disclose any abnormality. Careful auscultation at the proper place will usually reveal this lesion. Its seriousness is to be judged not by the loudness of the murmur but by the symptoms present, by the degree of cardiac enlargement and by the fall in diastolic pressure.

The murmur of mitral stenosis is frequently limited to a small area over the cardiac apex. Failure to locate the apex beat and to listen directly over this region is a common source of error in detecting this murmur. The murmur of mitral stenosis is notoriously variable. It may be louder in either the upright or the recumbent position and it frequently becomes louder after a little exercise. In doubtful cases, therefore, the effect of posture and of slight exercise should be noted. The murmur of mitral stenosis is typically presystolic only when the auricles are active. If the heart is absolutely irregular, owing to auricular fibrillation, then the murmur of mitral stenosis lacks this presystolic accentuation. It may then be heard thruout diastole or only in early diastole. Sometimes the murmur is so brief that it simulates a third heart sound and a gallop rhythm is at first suspected.

DIFFERENTIATION OF THE "IRRITABLE HEART."

After eliminating from consideration cardiac complaints that are caused by acute endocarditis and by chronic valvular disease, the rather large residue left are due in the main either to serious disease of the heart muscle or to those distubances of cardiac action which are unassociated with serious muscular changes and which have come to be known as nervous or irritable hearts or as neurocirculatory asthenia. The separation of these two classes presents the most difficult problem encountered in the diagnosis of early heart disease. In other words, how does one try to distinguish those patients whose heart symptoms depend upon no serious cardiac impairment from those who are beginning to suffer from serious and progressive muscular lesions?

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*Read before the Forty-sixth Annual Meeting of Oregon State Medical Association, Portland, Ore., June 3-5, 1920.

In such a separation much depends upon a proper evaluation of symptoms. The serious nature of edema, of marked shortness of breath on exertion and of characteristic anginal pains need not be repeated. Palpitation is not in itself an alarming symptom. The study of soldiers suffering from "irritable heart" has emphasized the fact that in some instances their symptoms may suggest an organic heart lesion. These patients frequently complain of breathlessness and pain about the heart on exertion, of palpitation, dizziness and fainting. While it is true that the symptoms in these patients often suggest a nervous origin, nevertheless the definite relation between exertion and the severity of the symptoms may awaken a suspicion of serious progressive disease. Only by a careful scrutiny of the symptoms, followed by a painstaking examination, can a differentiation be made. I propose to outline some of the examinations which throw light upon the problem of separating these two groups of cases.

CARDIAC ENLARGEMENT.

In the first place any definite cardiac enlargement is evidence of serious muscular change. The demonstration of such an enlargement by ordinary physical methods of examination is not always easy, however. On the one hand, a violently throbbing apex beat may be seen and felt beyond the normal limits, even tho the accurate determination of the cardiac size by radiographic methods shows no enlargement. On the other hand, enlargement of the heart may escape detection by physical methods because a distension of the lung border overlying the heart separates this organ from the chest wall to an unusual degree. In elderly patients, particularly, emphysema of the lung borders is common, and when present, the apex beat may not be felt and the cardiac dulness may not be enlarged, even tho radiographic examination shows an indisputable increase of the heart shadow. Accurate measurements of the heart shadow require an orthodiagraph or a six-foot plate. For ordinary clinical purposes, however, these are hardly necessary, for unless the heart shadow easily exceeds the normal average it does not possess much clinical significance, and increases of this magnitude are readily recognized in any ordinary chest plate.

Hypertrophy of the heart muscle is usually accompanied by some dilatation of its cavities. It is this dilatation rather than the hypertrophy which causes changes in the cardiac outlines. We have, however, a method which may under certain conditions show a change in the muscle mass of the heart. If one ventricle is hypertrophied to a greater degree than the other, this can be demonstrated by the electrocardiograph. Left ventricular preponderance is the rule in chronic arterial hypertension and in certain valvular lesions. If it is present and these causes are absent, then ventricular preponderance indicates some primary change in the muscle itself.

DISTURBANCES OF RHYTHM.

Modern studies of the cardiac rhythm have proved of no little value as aid in guaging the seriousness of a cardiac lesion. Respiratory irregularities, for example, are of nervous origin. They are to be disregarded except for the support they give to the assumption that other complaints may likewise be of a nervous character. On the other hand, auricular fibrillation, complete heart block, and the pulsus alternans always mean serious cardiac change. Between these two extremes stand the extrasystoles, which may or may not signify serious trouble and which, therefore, merely indicate that a careful examination should be made to determine the reason for their occurrence.

The differentiation of the various types of cardiac irregularity was orginally made possible thru graphic records taken of the venous pulse or of the electrical changes which accompany each cardiac contraction; and at the present time such records furnish the only conclusive evidence as to the nature of any given cardiac irregularity. Nevertheless it is possible for a physician who is familiar with the subject to recognize the nature of most arrhythmias during an ordinary examination and without recourse to instruments. I believe that the ability thus to recognize irregularities is well nigh as important to the average physician as is the ability to differentiate heart murmurs. For this reason I propose to formulate a few working rules for such recognition.

The three common forms of irregularity are: (1) the sinus irregularities, also known as vagus, nervous, or respiratory irregularities, (2) extrasystoles and (3) auricular fibrillation.

Sinus irregularities occur most frequently in young individuals and especially in those who are nervous or who are recovering from acute infections. They can usually be markedly accentuated by having the patient breathe slowly and deeply.

Extrasystoles are premature beats which occur during the course of an otherwise regular heart rhythm. Unless one can be certain that the rhythm is quite regular between these premature beats, there is a strong possibility that one is dealing with the third common irregularity, auricular fibrillation.

Auricular fibrillation is characterized by the fact that no succession of beats are equally spaced. It is absolute irregularity. Where the rate is rapid and the irregularity is extreme, auricular fibrillation is easily recognized. In some instances, however, the rate is not increased and the heart is almost but not quite regular. Such cases are difficult to recognize, yet they are important because auricular fibrillation always means serious cardiac disease. Auricular fibrillation usually continues for long periods and has, therefore, been called the permanent irregularity. Yet it may occur in short paroxysms that last for hours or days and that recur at intervals of months or years. Between the paroxysms the heart may appear perfectly normal. The physician who has the opportunity to observe the paroxysm is, therefore, in a better position to recognize the condition than is the specialist who sees the patient during an interim.

Most of the rarer types of cardiac arrhythmia require instrumental records for their recognization. A very show pulse below 40 usually means a complete heart block. The pulsus alternans may be recognized while taking the systolic blood pressure, for in this condition the alternately large and small pulse waves during a regular rhythm are emphasized by applying a pressure in the cuff which will cut out the small but permit the large waves to come thru.

ABNORMAL ELECTRIC COMPLEXES.

The electrocardiogram not only gives information concerning the relative weight of the two ventricles and the nature of an arrhythmia, but it may also give information as to the manner in which the cardiac muscle performs its contraction. Two changes in particular are of serious significance. In the first of these the initial portion of the ventricular complex, the QRS waves, is widened, apparently because the excitation process spreads over the ventricles in come abnormal manner. In the second the terminal wave in the ventricular complex, the T wave, is inverted in Lead I. The cause of this change is not understood but like the widening of the initial complex it usually indicates some serious change in the heart muscle. While these changes in the form of the ventricular complex are of considerable significance, they are not common and they usually occur in patients whose condition is already known to be serious. They are seldom of value, therefore, in detecting the earlier stages of a muscular lesion.

SUMMARY.

In the examination of patients with cardiac complaints an accurate history and a correct interpretation of the symptoms elicted is of as great importance now as it has always been. The more recent additions to diagnosis have served to furnish new objective evidence of cardiac disease. Particular search should be made for cardiac infection, for diastolic murmurs, for enlargement of the heart, for significant changes in rhythm and for alterations in the form of the electrocardiogram. If one of more of these can be found, organic disease cannot be excluded. If, on the other hand, they cannot be found and if the symptoms are such as to suggest an irritable heart, the latter condition becomes a probable explanation of the cardiac complaints.

The distinction between a myocardial disease and the irritable heart is by no means a simple academic problem. Upon this decision must rest both the prognosis and the treatment. If organic muscular disease is present, the patient's activities should be restricted within his limits of capability. If the symptoms are due to an irritable heart, the patient should be encouraged to disregard his cardiac complaints and to take what exercise he can without discomfort, while the physician directs his attention to other parts of the body than the heart. Especially should he search for such conditions as focal infections, thyroid disease, general physical exhaustion and nervous instability.

THE WAR AND THE HEART.*

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The title may be somewhat ambiguous in its brevity. More precisely I wish to speak of the light thrown upon heart disorders by the enormous number of heart examinations only possible in the Army. While the same heart disturbances exist in civil as in military life, yet some are not seen because the subject thinks himself well and in other cases, as in irritable heart, the subject has become habituated to such an extent that he does not seek medical advice.

When whole companies of men with disordered hearts are massed together, it would be strange indeed were not some new knowledge to be derived from the circumstance. Again when there comes the opportunity to examine a thousand hearts in a day, not an ideal procedure, it is scarcely comparable with any experience in civil life.

First, to contrast three very different experiences of the writer in heart work. As one of a large board, primarily examining the lungs and secondarily observing heart abnormalities, it was a matter of surprise how frequently mistakes were made in respect to the heart by men of more than average professional ability. Thus it was quite common that aortic and pulmonary stenosis were discovered, one man finding three cases of the latter in a week. These diagnosis were made on the presence of systolic murmurs alone. Such diagnoses were absurdly erroneous but represent the average medical man's knowledge of the heart.

Next, at a medical officers training camp, the teacher selected to instruct medical officers on the examination of recruits, affirmed most emphatically that the Alpha and Omega of heart examinations consisted in finding the situation of the apex-beat,—that was all there was to it. If he had added the counting of the pulse and its reaction to exercise, he would have not gone wide of the mark and the results might have even surpassed those of the cardiovascular expert.

The third experience was with the august teachings and practice of a heart expert, a college instructor, adept in the mysteries of the electric cardiograph and ink polygraph. But with him the intricacies of heart examinations lopped off so many heads that finally his own was decapitated to save enough for service, and most of those waiting for discharge papers were at once put to active duty by the able internist who succeeded him. The internist took a broader and more sensible view of the man, as well as of his heart, and by replacing the heart expert the heart aches abruptly ceased.

Let us consider some of the more common murmurs. Webster's dictionary defines a murmur as a confused sound. But the confusion of a heart murmur is not in the heart but in the head—of the examiner. One can not infer any pathologic significance from a systolic murmur alone, whether transmitted or not. The common idea that such is a sign of mitral regurgitation is not warranted. In rheumatic or streptococcic hearts the vegetations cause roughening of the valves and murmurs without the presence of regurgitation. It is rare that there is enough disease of the valves to cause leaking without stenosis, and stenosis is *the* important lesion. Loud systolic murmurs exist without any disease of the valves being apparent and we may disregard them wholly if cardiac hypertrophy, history of acute rheumatism, tonsillitis or chorea are absent, and reaction to exercise tests is normal. Mitral stenosis always accompanies absolute regurgitation. We should, therefore, not discriminate between regurgitation and stenosis but more properly classify the case as mitral disease.

With nephritic, syphilitic, arteriosclerotic and goiter hearts the systolic murmur represents cardiac dilation and relative insufficiency or, in other words, myocardial degeneration. A lax mitral ring cannot be distinguished from a rough or crumbled valve by the murmur.

In the young, as in the Army, a mitral systolic murmur alone is no cause for disability. But in persons of middle age a mitral systolic murmur is often evidence of a dilated heart and of myocardial trouble.

In the course of mitral (streptococcic or rheumatic) disease there is, in time, first a systolic murmur at the apex and, after months or years, the presystolic murmur of mitral stenosis occurs. Death from pure mitral regurgitation is practically unknown.

It is important to note that in children under ten the apex-beat is usually in the fourth space and outside the nipple line, but after this time it normally appears inside the nipple line and in the fifth space.

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So-called functional or insignificant murmurs can not be satisfactorily and etiologically explained in most cases. They may be heard with greatest intensity at the apex, or at the aortic or pulmonary areas, or inside the apex—more often the latter. Their situation is no excuse for diagnosing organic disease in that region.

One of the most common systolic murmurs is the cardio-respiratory, heard more often in those with flat chests. This murmur diminishes in intensity with inspiration and is heard most loudly when breathing is stopped after expiration. Pressure of the left lung (lingula) against the heart is given as the etiology.

I remember vividly the case of a tall, robust young college athlete, whose whole army career was wrecked by such a murmur, he having been rejected by three examining boards. The murmur was heard most intensely inside the apex but disappeared wholly on inspiration. His reaction to exercise was perfect and otherwise than the murmur he appeared to be normal. He was sent in with a bunch of limited service cripples, had pneumonia and was discharged because of the armistice, never having had any chance whatever after a brilliant beginning in an officer's training camp. Such is the effect of a "confused sound" or murmur.

The same remark applies to rheumatic aortic lesions as to mitral disease. It is rare that regurgitation occurs without stenosis, altho the regurgitant murmur and signs are often most apparent.

It has been found in the Army that there are many cases of aortic diastolic murmurs without the presence of the other signs of regurgitation we ordinarily expect—as the high pulse pressure, the ox heart, heaving impulse, Corrigan pulse and pistol shot sounds. Many of these cases are due to rheumatism, as many as 40 per cent. according to English reports. The disability and prognosis are much less serious than with syphilitic aortitis because the coronary arteries are not sclerosed, the aortic ring is free, and the disease is not progressive. There is a soft blowing murmur to the left of the sternum at the fourth sternocostal junction in rheumatic aortic disease and the murmur is *so* soft that it was often overlooked in the noisy surroundings of army examinations. It is sometimes impossible to discriminate between this and a mitral diastolic murmur without other signs of aortic disease. I was suddenly asked to carry on a hospital clinic for the chief in such a case and was much embarrassed, after demonstrating the case as mitral disease, to have him come forward and give his opinion that it was aortic regurgitation. We agreed to let the fluoroscope decide the matter and it was seen that there was marked dilation of the left auricle which substantiated the diagnosis of mitral stenosis.

The rheumatic cases of aortic regurgitation may show no signs of disability and live to an old age. I have such a case now in the person of a piano mover who suffers no disability but has every symptom and sign of aortic regurgitation. He is subject to repeated attacks of acute rheumatism.

Most aortic systolic murmurs in the young, without signs of heart disability, are to be ignored. In middle-aged subjects these murmurs are often due to roughness or dilation of the aorta, associated with syphilis, arteriosclerosis or high tension.

Systolic murmurs in the pulmonic area are likewise of no clinical significance in most cases. Osler once said, "Given a man of 65 who has an aortic, systolic murmur and thrill, with a small, slow infrequent pulse and a feeble or absent second sound, the case *may* be one of aortic stenosis." Pulmonic stenosis is one of the rarest of valvular lesions. I never met with a case in the Army, altho the diagnosis was often made. One should consider everything else before making diagnosis of pulmonic stenosis.

The general tendency is to attribute altogether too much importance to murmurs in heart diagnosis and not enough to cardiac symptoms—as fatigue, pain, dyspnea, and irregularity in rate and rhythm of the heart beat. Everyone knows that the condition of the heart muscle is *the* main thing but this knowledge is not acted upon.

The etiology of murmurs is still hypothetic in many instances, and similar murmurs may have varying causation. Thus a heart specialist in the Army demonstrated a case of aortic regurgitation, with a diastolic murmur to the left of the sternum, for which the subject was to be discharged. There were no other signs of aortic disease. An internist who listened to the murmur asked at once if the patient had recently had pleurisy and it developed that he was convalescent from an attack. Subsequent observation indicated that the murmur was of pleuritic origin.

Mitral stenosis is a common cause of disability in the Army because, as we have noted, it is an advanced form of mitral disease. After years following the original infection with the presence of a systolic murmur, some enlargement of the heart and accentuated second pulmonic sound, the presystolic rumble, snapping first sound and thrill appear. No murmur is more variable. It is often absent and only brought out by exercise or amyl nitrite. No murmur is more frequently overlooked, only 56 per cent. being diagnosed, according to Cabot. Presystolic murmurs are found in adherent pericarditis and in any case with dilated left ventricle, as seen so often with aortic regurgitation—the Austin Flint murmur. As has been noted, a diastolic mitral murmur may readily be confused with an aortic diastolic murmur. Mitral stenosis is seen more commonly in young women, because chorea and acute rheumatism occur more often in girls.

The heart irregularities found more frequently in the Army are sinus arrhythmia and ventricular extrasystoles. Sinus arrhythmia is physiologic in young people, the pulse quickening during inspiration and slowing down on expiration and on holding the breath after expiration. It is a vagus phenomenon and may be removed by atropine.

Extrasystoles cause what is commonly known as intermittent heart. The irregularity usually disappears when the pulse rises above 100 or so, thru exercise and fever. There is occasionally a feeble heart beat followed by a more forcible impulse, often felt by the patient.

The feeble or premature beat may be heard with the stethescope but is not felt in the pulse, hence the intermission. Most of the beats come thru to the pulse, so that the count at apex and radial pulse are nearly the same. Extrasystoles, in the absence of other heart abnormalities, are of no pathologic significance and are wholly different from auricular fibrillation, where the heart rate is usually very rapid and irregular and a large proportion of the heart beats are not felt in the radial pulse.

The rapid hearts gave most trouble in the Army in the matter of diagnosis and there is much we do not know about them. Tachycardia was more frequent among the negroes than whites. Almost a third of those held on account of venereal disease had a pulse rate varying from 120 to 140. We passed those with a pulse rate of 120, providing they reacted well to exercise. This tachycardia was officially put down on paper as syphilitic myocarditis but I differed from the finding, as there was not sufficient evidence. It seemed to me much more common in those with chronic gonorrhea.

The great difficulty in tachycardia is the classification of individual cases in reference to etiology, since both treatment and prognosis depend absolutely upon this. No man in the Army has done more than my associate, Dr. F. M. Smith, toward solving this problem. The tentative groups into which we place tachycardias include simple tachycardias, irritable heart, hyperthyroidism and tuberculous forms.

To determine simple tachycardias we must first exclude irritable heart, and perhaps secure a history of its (tachycardia) long duration, find that the subject reacts well to exercise and finally rule out tuberculosis and other diseases. It is best to study the cases in bed and by the newer tests with thyroid feeding, injection of adrenalin and atropine, and determination of the metabolic rate and blood sugar curve.

The syndrome in irritable heart is usually characteristic and it has an enormous literature of its own under the names of effort syndrome, D. A. H., N. C. A., etc. While this condition may be induced and aggravated by infections, by gassing and the rigors of war, yet in most cases seen in our camps one could secure a history of inability to work or play dating from childhood. Owing to the sorting out process of the Army one might see hundreds and thousands of these cases. They are usually neurotic, often enteroptotic, with drop hearts and narrow, long chests and suggest the universal congenital asthenia of Stiller. The symptoms after slight exertion are those seen in the normal after extreme exertion and exhaustion—hence "effort syndrome" of Lewis.

You are probably familiar with the syndrome: The breathlessness, cyanosis of lips and hands, giddiness, feeling of faintness, pain about the heart, tachycardia, palpitation, weakness on exertion with cold sweating, especially under the arms, cold hands, and dermographia. Disorder of secretion of the ductless glands with secondary disturbance of the sympathetic system are evident. But while these cases of irritable heart may be classified symptomatically, yet further study may separate them more precisely into cases of hyperthyroidism or tuberculosis.

After acute infections, as influenza pneumonia, there were thousands of cases with tachycardia. Personally I had in my care hundreds of such convalescents who were drilled daily with pulse rates between 120 and 140. The severe cases of tachycardia were separated from the milder and graded exercises were given, the lightest sort of setting-up exercises for a few minutes, increasing gradually their severity and duration. Each man was watched carefully as to the effect of exertion. In these cases one would naturally expect to find myocarditis, with murmurs of relative insufficiency and enlargement of the heart, but both physical examinations and autopsies of those dying from influenza pneumonia revealed the absence of myocarditis most surprisingly, here and abroad.

Analysis of these tachycardias following influenza pneumonia showed that they could be classified usually into the groups already noted, i. e., simple tachycardia, irritable heart and hyperthyroidism which either existed prior to the infection or were caused or aggravated by it.

It might be reasonably assumed that, when tachycardias do not react normally to injections of atropine (gr. 1-33), they are suffering from loss of vagal tone but when, on the other hand, they react violently to injections of adrenalin (m. 7.5) there is an oversensitive sympathetic causation. But tests with adrenalin and thyroid feeding are not wholly reliable.

It is not safe to diagnose hyperthyroidism in the presence of goiter, fine tremor, and even some eye signs, for in an analysis of thirty such cases with thyroid feeding, epinephrin injection, estimation of blood sugar curve, etc., Smith found but six cases to be true hyperthyroidism, the remainder being classified into simple tachycardia or irritable heart. The metabolic rate should also be taken, as this is by far the most reliable test. Of course it should be appreciated that the whole subject of tachycardias is still sub judice but the recent work is highly suggestive and illuminating.

Personal experience in the Army with the unreliable diagnosis in heart cases by the general practitioner and the almost equally unreliable opinion of the too technically trained and insufficiently experienced cardiologist has made me doubt the findings of either.

It is hard to say whether the lack of ordinary substantiated knowledge about the heart is any worse than the results of a special training with all the modern physical instruments of precision, minus a long and broad clinical experience in general diseases. One may only know hearts by following them for years, and how often doctors fall down lamentably in the prognosis of heart troubles and become forever after the subjects of the patient's pet reminiscences.

The narrow perspective of the too pure cardiologist reminds one of Lincoln's story of the man with a gun who mistook a flea on his eyelash for a squirrel on a tree. If the ink polygraph (or electro-cardiograph) is the gun in the hands of the cardiologist he will not bag much game.

The cases that may be elucidated by the electrocardiograph include chiefly the arrhythmias, and brady—and tachycardias, and these may, in ninety cases out of a hundred, be determined satisfactorily by clinical signs and symptoms, as noted above.

While the newer instruments of precision are of great value in heart work, they are only aids in diagnosis and can not take the place of long and wide experience in diseases of the heart. No instrument "can replace the watchful eye, the alert ear, the tactful finger, and the logical mind which correlates the information and so reaches an exact diagnosis" (Keen). And an essential addition to this is a long experience in trained observation to enable one to utilize intelligently the history, symptoms and physical findings.

A REPORT OF THREE CASES OF PERICARDITIS IN WHICH THE EARLY SYMPTOMS WERE ENTIRELY REFERRED TO THE ABDOMINAL CAVITY.*

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For many years our attention has been called to the danger of mistaking appendicitis for right-sided pneumonia. Our text-books and writers are quite silent on the relation of pericarditis and abdominal symptoms. From a personal experience in three cases, we are led to believe that pericarditis occasionally produces symptoms that may indicate solely acute, abdominal mischief. These cases are briefly as follows:

Case 1. Mr. C. age 45, a clergyman, had been under treatment several months for hyperacidity. One morning at three o'clock he was awakened by a burning pain in his stomach which he interpreted as one of his old acid attacks. He arose and took a glass of milk as had been his custom. Before he could return to his bed he was seized with most agonizing abdominal pain. One-half hour later my associate, Dr. Moran, found Mr. C. on the floor writing in agony. He was unable to return to bed after telephoning for help.

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*Read before the Forty-Sixth Annual Meeting of Oregon State Medical Association, Portland, Ore., June 3-5, 1920.

Examination showed the patient in great shock. Chest and heart were negative, abdomen rigid and exquisitely tender. With a history of hyperacidity, and possible ulcer, a diagnosis of perforating ulcer was made and immediate laparotomy was done. The abdomen was negative—perfectly healthy. Two days later positive signs of pericarditis were present. Autopsy revealed perulent pericarditis.

In looking back over this case we can discover no reasons that would justify us in not repeating the mistake.

Case 2 was a ten year old school boy, Master A. He had gone to bed in good health. At four o'clock in the morning he came down stairs and told his parents that his stomach hurt him. The writer first saw the case two days later in consultation with Drs. Ricen and Robert Hall. The chest and heart were negative, urine negative, fever, leucocytosis, tender, rigid abdominal wall, with a tender mass on the right side at level of the naval. A probable diagnosis of appendicitis was made and operation advised.

Laparotomy revealed a normal appendix and normal abdomen, except a long tongue-like projection of the right lobe of the liver which had been mistaken for an inflammatory mass. Twenty-four hours later a marked pericardial friction was present. This lad ran a stormy convalescence. His heart condition was desperate, but he finally recovered.

Confronted again with a healthy boy, awakened at four A. M. with stomach-ache, fever, leucocytosis, abdominal tenderness, rigidity, and tender mass, normal urine, normal chest, and normal heart, the writer is free to confess that he would probably repeat the mistake of opening a healthy abdomen.

Case 3 was seen with Drs. Bilderback and Bertha Stewart. Baby C., girl four years of age, had been sick one day with abdominal pain, tenderness and rigity, fever, leucocytosis, urine negative, chest and heart negative. Symptoms and signs pointed to trouble below the diaphragm. After relating to Drs. Bilderback and Stewart the experience with Case 2, another careful examination of the heart was made with negative results.

Operation found a normal abdomen. Two days later pericarditis and endocarditis were unmistakably present. This little girl had a most serious time, and now after ten months is not well.

In this case the operation was exploratory and so explained to the parents. The signs and symptoms all pointed to disturbance in the peritoneal cavity. Previous to operation there was no indication that the pericardial sac concealed the pathologic condition.

The objects of this paper are, first, to remind us that pericardial infections may simulate peritoneal maladies; second, that such simulation may be perfect and entirely misleading; third, by directing our attention to this problem it is to be hoped that some one will recognize symptoms and signs that will enable us to make a positive differentiation and thus avoid useless laparotomies.

THE DIAGNOSIS OF PROSTATISM.*

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The symptom-complex of obstruction to urination when due to hyperplasia, cancer of the prostate or to contracture of the vesical neck is designated by the term "prostatism." Frequency of urination, usually with difficulty, is the common clinical evidence but this symptom, as is seen by Table 1, occurs from numerous causes other than obstruction, and the above three conditions are not the only types of obstruction producing it. The swollen prostate or vesical neck congestion that accompanies certain forms of prostato-seminal vesiculitis frequently obstructs the urinary outlet in such a way as to produce for periods of weeks and even months typical prostatism, and often the first manifestations of certain spinal cord lesions, particularly such as tabes dorsalis, simulate prostatism in the type of urinary disturbance produced. The term is limited, however, incorrectly, to designate the urnary disturbance resulting from prostatic hyperplasia, prostatic cancer and contracture of the vesical neck.

This limitation of use has arisen for the following good reasons: These three conditions produce a very similar clinical picture; they occur in old men, except contracture which frequently so occurs. They are commonly associated in the same patient, and the problem of the differential diagnosis upon which successful treatment depends demands a joint consideration.

One of the most characteristic signs of prostatism is gradually increasing inability to completely empty the bladder which is usually coincidental

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*This paper is an outline of the "Lantern Slide Demonstration of Diseases of the Prostate Gland," given before the Washington State Medical Association, Spokane, Wash., Sept. 11-13, 1919.

TABLE I.
Classification of Causes of Frequency of Urination.
for Purposes of Diagnosis.

I. General.
- a. **Urinary Excretion.**
  - Diabetes mellitus.
  - Diabetes insipidus.
  - Nephritis.
  - Alimentary (usually transient from beer, tea, large quantities of water.)
- b. **Nervous.**
  - Psychic or functional.
  - Reflex—(rectum, female genital organs, male genital organs.)
  - Organic.
    - Cerebral (tabes dorsalis, general paresis, transverse myelitis, fracture, tumor, etc.)
- c. **Urinary Irritation.**
  - Occasionally even a normal urinary tract may be irritated by substances of excretion from diet, renal stone, tumor or infection without cystitis, notably tuberculosis of the kidney, infectious diseases.)

II. Local Infections.
- a. **Of the Urethra.**
  - Urethritis—mainly posterior.
  - Verumontanitis.
  - Prostatitis, stricture, seminal vesiculitis.
- b. **Of the Bladder.**
  - Cystitis, primary or, more commonly, secondary to infections of the kidney.
  - Vesical ulcerations.
  - Trigonitis—female.

III. Local Non-inflammatory Abnormalities.
- a. **Of the Urethra.**
  - Congenital valves—male, infants and boys.
  - Diverticulum (urethrocele,-cystocele-female.)
  - Stricture, congenital—at meatus in boys, (Inflammatory., traumatic.)
  - Verumontanitis.
  - Stone.
  - Tumor, caruncle—female polypi, benign and malignant.
  - Prostatism, prostatic hypertrophy.
    - Prostatic cancer.
  - Contracture of the vesical neck.
- b. **Of the Bladder.**
  - Contracted bladder.
  - Stone or foreign body.
  - Tumor.
  - Diverticulum.

TABLE II.
Causes of Residual Urine.

Nervous reflex.
Urethral stricture, stone or polyp.
Prostato-seminal vesiculitis.
Vesical stone, tumor or diverticlum.
Spinal cord or cerebral lesion.
Prostatism:
  Prostatic hyperplasia.
  Prostatic cancer.
Contracture of the vesical neck

with progression in the symptoms of frequency and difficulty. Several other conditions lead to the presence of residual urine (Table II) and an accurate differentiation can only be insured by following certain routine steps of procedure that lead up to its determination. A careful and complete urologic study that would cover all cases may be outlined but, as the outline will indicate, the development of an examination must proceed by logical steps in accordance with information gained in the course of the procedure. It would ordinarily be criminal to instrument a case of acute urethritis and it is equally illogical to submit a case of pyuria to cystoscopy before having made a complete urinary and genital study. The outline should be considered in the light of this reservation and applied according to individual indications and not as a rigid routine for all cases.

PROCEDURE OF A COMPLETE UROLOGIC EXAMINATION.

I. History

II. General physical
- (a), Blood count.
- (b), Blood pressure.
- (c), Blood complement fixation for syphilis; for gonorrhea.
- (d), Blood nitrogen retention.

III. Examination of external genitalia—urethral discharge—smear.

IV. Examination of the urine:
- A. Three glass test.
- B. Five or seven glass test.
  - (a), Macroscopic.
  - (b), Chemical.
  - (c), Microscopic.
  - (d), Bacteriologic.
  - (e), Guinea pig inoculation, and
  - (f), Total phthalein test.

V. Rectal Examination:
- (a). Condition of anal sphincter-hemorrhoids.
- (b). Size, form, consistency of prostate.
- (c). Size and character of seminal vesicles and ampullae.
- (d). Gross and microscopic appearance of secretion expressed by prostatic massage and by vesicle stripping:

VI. Instrumentation:

Urethral exploration (Bougi a boule.
(Sounds.

Catheterization (Length of urethra.
(Residual urine.
(Bladder capacity.

Urethral exploration (Bougie a boule.
(Usually more satisfactory
(when done with a cystos-
(cope than with sound or
(catheter.

VII. X-rays:
- a. Kidneys.
- b. Ureters.
- c. Bladder.
- d. Prostate.

- e. Long bones—viscera.
- f. Cystography.

VIII. Cystoscopy or endoscopy:
- a. Plain (study of bladder and bladder neck.)
- b. Ureteral catheterization.
  - Separate urine examination:
    - Macroscopic.
    - Microscopic.
    - Animal test.
    - Bacteriologic.
    - Function (phthalein).
- c. Wax-tipped catheter exploration (for stone or stricture).
- d. Pyelography.

A glance at Table I will emphasize the importance of a complete clinical history. The patient's age, the nature and duration of symptoms and the character of their progression are valuable clues which at once eliminate possibilities. A history of frequency and burning on urination of relatively short duration in an individual under 40 is more indicative of urinary infections, particularly tuberculosis, or stone with secondary infection, than of prostatism, but occurs in a man over 70 more commonly from cancer of the prostate, the probability of which is increased by a complaint of pains about perineum, hips or thighs. Gradually increasing difficulty and frequency over a period of several years, beginning about 50, is typical of hyperplasia, as the same symptoms, beginning at 20 to 30, are more frequently caused by contracture of the vesical neck. The history, however, can never make the diagnosis.

The examination of the external genitalia is valuable as a rigid routine. Evidence of present or past epididymitis is quickly noted. Instrumentation should be delayed in the event of profuse urethral discharge or an acute or subacute epididymitis.

Examination of the urine is an important step. The microscopic and bacteriologic study has greater diagnostic value than the chemical; therefore the method of collection should be satisfactory. The ordinary specimen brought by the patient is practically valueless. The three glass test will eliminate the error of urethral contamination, and has in itself considerable diagnostic importance. If all three are clear, urinary infection in any portion of the tract is elimated. Cloudiness due to pus in the first glass indicates urethritis, in the third glass prostatitis and in all three glasses a pyuria which may have one or more of a multitude of sources. It may be partial or complete. If partial the kidneys are free of involvement.

Before considering any case complete, which can only be determined by cystoscopy and ureteral catherization, search for cause in the lower tract should be thoro. In the male it is surprising how frequently a pronounced pyuria often of months standing is secondary to a chronic seminal vesiculitis or prostatitis. The development of a residual urine is often the beginning also of a persistent pyuria.

The information obtained by a properly conducted and controlled urinary study as just intimated gains in value upon correlation with the findings of rectal exploration. The tone of the anal sphincter if relaxed, suggests tabes. The direct digital determination of the character and size of the prostate often enables at this stage a positive diagnosis. Stony, non-elastic, fixed hardness is characteristic of cancer. But often in the earlier stages the cancerous invasion is localized in healthy prostatic tissue which transmits elasticity and leads to deception. Recently I had a nodular growth over the left half of the prostate which, because of its extreme tenderness and fluctuant character, was at first thought to be an abscess, but on perineal removal proved a very malignant type of medullary carcinoma.

Tuberculosis and chronic inflammatory changes produce fibrous infiltration which simulates the stony hardness of the ordinary cancer, and stones in the prostate may be of such size and position as to be mistaken for cancer. Cancer commonly starts in the posterior lobe and spreads (Table III) by extension along the ducts, or by direct cell invasion, so as to involve first the seminal vesicles and base of the bladder. The mucous membrane of the urethra and bladder are quite resistant, nor does the rectum ever become involved except rarely in very late stages. Blood metastases are usually late. Tuberculosis is characteristically nodular on pal-

TABLE III.

MODE OF CANCER INVASION.

Posterior lobe is common seat of primary focus.
Spreads along planes of least resistance
by
(1) By direct extension thru stroma and along ducts to seminal vesical, trigone, posterior bladder wall.
(2) By perirectal lymphatic plexus of Sappey to abdominal glands.
(3) By blood stream to long bones, vertebrae, viscera.

Resistant structures to invasion are

Capsules.	Fascia	Mucous surfaces of
true,	of Denonvillier.	Urethra,
False		Bladder,
of spheriods		Rectum.
of ejaculatory ducts.		

Therefore tends to remain confined for long periods to the interior of the prostate gland.

pation and rarely primary in the prostate. The commonest genital type is unilateral tuberculous epididymitis, between the ages of 20 and 40, involving primarily the globus minor, and secondarily the vas and corresponding seminal vesicle. In the later stages bilateral lesions are found. Rarely would the differentiation of cancer and genital tuberculosis lead to much confusion.

Chronic fibrous inflammatory infiltration may at times be differentiated with difficulty. Chronic inflammations can give extreme hardness, and doubtless everyone who sees many prostatics has mistaken these cases for cancer and vice versa. Prostatic stones may ordinarily be demonstrated by x-ray and in all suspicious cases this method of examination should not be neglected.

The diagnosis of prostatic cancer is made almost wholly by the findings upon rectal palpations. This limitation of method in arriving at a diagnosis and the late development of symptoms indicative of cancer that would arouse clinical suspicions renders early recognition of the lesion difficult and in point of fact quite exceptional. The stony hardness is so characteristic that recognition in the late stages after symptoms have developed is ordinarily simple. In the late stages the only possible treatment is often palliative, and the future of such is miserable and hopeless (See Table IV).

TABLE IV.

CLINICAL CLASSIFICATION OF CANCER CASES FOR PURPOSES OF TREATMENT.

I. Early type (limited to prostate.)
  1. Radical prostatectomy with or without removal of vesicles, part of vasa deferentia and bladder neck.
  2. Radium.
II. Late type (Seminal vesicles and possibly trigone invaded but no evidence of general metastases.)
  a. With symptoms of prostatism.
    1. Radical resection when possible.
    2. Partial prostatectomy.
    3. Radium.
    4 Catheter life or suprapubic drainage.
  b. Without symptoms of prostatism.
    1. Radical resection when possible.
    2. Radium.
III. Hopeless type (general metastases.)
  a. With symptoms of prostatism.
    1. Partial prostatectomy.
    2. Catheter life, or suprapubic drainage.
  b. Without symptoms of prostatism.
    1. Paliative treatment.

The importance of frequent routine rectal examinations of all old men by their physicians is obvious if we wish to alleviate the distress of this, one of the most frequent of all types of cancer. Relief by early treatment is hopeful and often permanent. Routine rectal study, therefore, appeals to the writer as of equal importance to that of the urine or blood pressure in men of advanced years.

The size and shape of the prostatic surface outlined per rectum is an important step in the diagnosis of hyperplasia. A normal gland has the general shape of a horse-shoe chestnut with a well-marked furrow, a pronounced notch and rounded lateral lobes with sulci at the sides between each lobe and the rectal wall. In hyperplasia there is at first an obliteration of the furrow, then of the notch and finally general enlargement of the whole surface, so that the lateral sulci become deeper and deeper and the upper border higher and higher until in the larger types the examining finger cannot reach the upper limits of the enlarged gland. In hyperplasia definite elasticity is the rule; sometimes the consistency is soft and boggy. There may be types of intravesical enlargement, in which the changes noted per rectum are indefinite. Such types of enlargement can only be definitely diagnosed upon cystoscopy. Often these types produce the more troublesome obstructions. Negative or indefinite rectal findings, therefore, do not exclude the possibility of the presence of a pathogenic hyperplasia.

Definite enlargements of the prostate, as felt per rectum, occur frequently in acute or subacute prostatitis, or prostatic and periprostatic abscess. Such conditions occuring in old men offer differential difficulties with hyerplasia. In prostatic infections, pain and tenderness upon palpation, a tense, often fluctuant rounded enlargement, the surface of which may be hot to the touch, the changes in the urine and general evidences of sepsis such as chills, fever, leucocytosis, etc., indicate the proper course of procedure. In such cases instrumentation may produce serious complications. Careful exploratory rectal examinations, daily or oftener, are advisible in doubtful cases.

It should be emphasized that hyperplasia is complicated by cancer in about 20 per cent of cases. One prostatic in every five will have both an hyperplasia and a cancer. This fact deserves emphasis, because cancer is all too frequently not recognized until at the time of operation for the enlargement, when it may be too late to give it the proper treatment. The frequency of this combination is one of the several advantages of perineal over suprapubic prostatectomy; for cancer, confined primarily as it almost invariably is to the posterior lobe, is both frequently overlooked and untreated by the suprapubic method.

In contracture of the vesical neck rectal palpation gives negative findings except, perhaps, for the ordinary evidence of chronic prostatitis and vesiculitis. The presence of the contracture is intimated in no way by palpation. But negative rectal findings in the presence of typical prostatism and residual urine have a tremendous significance. Such a condition may occur with intravesical hyperplasia without enlargement per rectum, with spinal cord lesions and with contracture of the vesical neck. In the cases of spinal cord disease relaxation of the anal sphincter is ordinarily coincident with that of the internal vesical sphincter. The three conditons are definitely differentiated by cystoscopy. Before cystoscopy, however, is undertaken, a good impression of the probable cause of the symptoms should have been made by the course of the routine procedure of examination as just outlined.

In probable prostatism a total phthalein test before cystoscopy is always advisable. In the case of low phthalein output cystoscopic study must be approached with caution. The complete drainage of large residuals with sudden relief of back pressure not infrequently precipitates acute renal reactions, either inflammatory or congestive, with grave uremic results. Instrumentation of a prostatic is often the cause of an initial and permanent urinary retention which in an ambultory case might prove serious. Nevertheless, the information gained by cystoscopy is so essential to an accurate diagnosis of prostatism that, when under proper control, the examination is always justified. The advantages of a careful routine study as outlined before undertaking cystoscopy cannot in justice be questioned. It will prevent complications in consequence of ill-advised examinations, and mistakes in diagnosis from incomplete observations. The cystoscopic study should not be undertaken prematurely, but by it alone, in the majority of cases, can the final complete differentiation of conditions of prostatism be made. The methods of interpretation for this differentiation are special and have been dwelt with in detail elsewhere.*

In conclusion, prostatism is a symptom-complex due to prostatic hyperplasia, prostatic cancer or contracture of the vesical neck. It ordinarily occurs in old men and the causes may be in combination or single. The consequences are far-reaching and serious. The treatment differs markedly for each cause. The importance of an early and accurate differential diagnosis is, therefore, apparent. In view of its importance in the early diagnosis of cancer, and irrespective of symptoms of prostatism, a routine rectal examination should be made on all men over 50 just as systematically as blood pressure and urine examinations are made. A differential diagnosis of conditions of prostatism is uniformly possible by the adoption of a logical routine procedure of examination, controlled step by step for each individual case. Serious complications resulting from ill-advised instrumentation will possibly thus be prevented and many mistakes in the interpretation of the findings obviated. Earlier and better treatment of prostatism will be the result.

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THE SURGICAL TREATMENT OF URINARY TUBERCULOSIS.*

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Let me remind you that tuberculosis in the human host as a rule enters the body thru inhalation or digestion; that it has a small focus of infection, spreads very slowly, involving one or several structures; that its course is a chronic one, with the formation of tubercular nodes and later the caseous lesions breaking down with abscess formations; that it has certain constitutional effects, loss of appetite, fever, anemia and falling off in weight. This is true of bone, lung or urinary tuberculosis. In a nut shell, the surgeon is called upon to drain the abscess when it develops, excise and curet when necessary and to employ all other agents or remedies at his disposal, to combat, arrest and kill off the invading tubercle bacillus. After the knife, rest, sunlight, over feeding, tonics, fresh air, out of doors, tuberculin and one or two drugs. I mention these because I want to give a bird's eye view of tuberculous lesions, for the tuberculous epididymis, cervical adenitis or Pott's is just the out cropping; involvement is rarely limited to one small gland of the entire body.

Of the surgical treatment of this disease there are two phases, the operation itself and the postoperative treatment; the latter is by far the more tedious, more trying and the more difficult, calling for faith, hard work and perseverance in large measures.

Before separately taking up the different urologic organs involved, I will mention the great necessity there is to accurately locate all lesions as far as possible. This is not always easy, even for those specially trained and equipped. I will first mention tuberculous epididymitis. Breifly the story is this: the slow development of a painless lump in either testicle, usually unilateral. Palpation gives to the touch a hard, nodular, irregular tumefaction of the globus major, or often crescentic in shape, telling of the involvement of the entire epididymis. At times there is abscess formation, rupture thru the skin and a discharging sinus. Most of these abscesses are small, single or multiple and do not break thru. In most cases of tuberculous epididymitis, the vas deferens is also involved, feeling the consistency and size of the stem of a clay pipe; it is usually painless. This is one of the marked differences between infection with the tubercle bacillus and the gonococcus; the latter is noted for its extreme sensitiveness to the touch. Further exploration thru digital palpation of the rectum often shows involvement of the seminal vesicles of the same side.

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*Those interested may be referred to The Journal of Urology, 1918, II—433.

Here I will pause to discuss the surgery and later pursue the infection to the upper end of the urologic tract. Tuberculous epididymitis is a surgical condition and the earlier diagnosed the more conservative the operation. To reach the epididymis, I make the cutaneous incision over the lower anterior portion of the scrotum, pick up the tunica vaginalis, slit it and turn the testicle outside; this gives a good exposure of the epididymis from end to end. If only a small portion is involved and the vas not enlarged, it will be quite safe to do a resection, closing the base over with a fine gut suture, replace the testicle within its tunic, closing the layers as we divide them. If, however, there is an extensive involvement or suppuration and abscess, the more radical procedure of castration is quite advisable and justifiable. The vas should be loosened up well into the external inguinal ring, drawn down, clamped, tied with chromic gut and the proximal cut end treated with carbolic acid and alcohol. It is surprising what improvement takes place after this operation, even when the seminal vesicle is involved.

This brings me to the prostate and vesicles. These structures present difficulty to operation, because they are not isolated, are situated at some distance from the cutaneous surface in a rather inaccessible region, and the surgeon finds himself between two barriers he must avoid, the rectum and the urethra. Furthermore, it is next to impossible to make a fine dissection and remove all these structures, for always some is left behind to prolong suppuration.

For example: Mr. G. H., 28 yrs. old, draftsman, single. A right tuberculous kidney was removed in January, 1915. Two years later perineal prostatectomy was performed for tuberculous disease at a famous clinic. No improvement has resulted. He still passes pus and blood. His urine shows bundles of T. B. Cystoscopy Dec. 7, 1919. Bladder capacity 70 cc., painful on distention, an irregular, ragged ulcer near right ureteral opening, 2 x 3 cm., covered with pus, also several on the intraureteral ligament which is greatly enlarged. A marked swelling of the left lateral lobe of the prostate is seen, also very edematous. The right ureteral opening was small and very red, the left one large, patent; no indication for catheterizing. Rectal palpation showed general enlargement laterally of both sides, especially left, tender, hard, irregular. Surgery cannot remove this patient's tuberculous tissue. He was sent South to be treated like a lung case; rest, forced feeding, sunlight and tuberculin.

In the cases of tuberculosis prostatitis and vesiculitis which are at all well developed, the bladder is naturally involved. It hardly can escape it, with bacilli discharging thru the many ducts of the prostate. How many times does not the tuberculous prostatic abscess work towards the surface of least resistance and rupture into the bladder to the patient's intense relief? Does this not suggest to you a more rational route to reach the tuberculous prostate? The prostatic urethra is often edematous, obstructing the stream; there is an inflammatory hematuria and tenesmus from an ulcerated bladder. I have found suprapubic cystotomy the safest and most efficient operation.

If the patient can retain it, fill the bladder with a warm boric acid solution, then under a novocain solution infiltrate the field of operation. A preliminary hypodermic of morphine or H. M. C. will help a great deal. Should your patient prove too nervous or present too thick an abdominal wall, light chloroform or nitrous oxide anesthesia works splendidly for this short operation. A five centimeter incision is made just above the pubes, the muscles separated, the peritoneal fat pushed up and freed from the bladder. Two anchor sutures are placed either side of the median line of the bladder and run thru the superficial fascia. The bladder is now stabbed and a digital exploration is made. If there is any indication of a prostatic abscess, it is pierced and drained into the bladder. A large drainage tube is now placed within the bladder, the anchor suture tied and the abdominal wound closed around the drainage. What are the results? The edema of the prostate begins to subside immediately, the constant contractions of the bladder wall cease, giving the ulcers a rest and the patient has immediate relief from pain, for which he is most grateful. Few acts are more painful than an ulcerated bladder trying to force scalding urine thru an edematous, abscessed prostate.

Now we come to the tuberculous bladder. Here again treatment will depend entirely upon the pathology found. In most all cases of involvement of the bladder, there is a process higher up which must be attacked, and the bladder will largely take care of itself. However, there are cases in which the bladder alone seems to be involved.

For example: Mr. B. I., male 17 years, single, university student. Complaint, constant and persistant pyuria. Examination of the catheterized urine revealed bundles of T. B., many pus cells. Rectal palpation showed a normal prostate and vesicles. Cystoscopy Sept. 27, 1919. Bladder capacity 120 cc., base contains granulations, tubercles, white tops, no ulcers, mild trabeculation. Right ureteral opening edematous, large, catheterized to pelvis, urine free flow, 6 cc in 10 minutes. Time appearance of the phthalein 4 minutes, 30 seconds, 40 per cent. in 30 minutes, no pus cells, no T. B., no bacteria. Left ureteral opening large, catheterized with No. 5 catherter for 30 cm. Urine clear. Time appearance of the phthalein 4 minutes, 30 seconds, 20 per cent. in 30 minutes. This patient now has clear urine, no pus, no tubercle bacilli, and no symptoms. The treatment was rest and tuberculin.

Tuberculosis of the bladder is rarely limited to that organ, being secondary to a tuberculous prostate, vesicle or kidney. The treatment consists in attacking the source of infection, when possible or advisable. Unfortunately these bladders decrease in size, becoming chronically contracted, holding only 100 to 125 cubic centimeters and, while the ulcers may be healed, and the tenesmus ceases, this frequent urination is most distressing. In a few cases the urinary viscus can be stretched to a greater capacity by systematic distention thru daily irrigations and hydrostatic pressure, but they are not the rule. They are urinary cripples.

Tuberculosis of the ureter and kidney will be considered together, as it is rare to find a tuberculous ureter without a tuberculous kidney. The cystosocopic picture usually shows a reddened, edematous ureteral opening, with tubercles or ulcers in the immediate neighborhood. When we find this we can expect a thickened, inflamed ureter often of very large size, increasing from half a centimeter in diameter to two centimeters. On the other hand, the ureteral opening may appear perfectly normal and without catheterizing give no inkling to the pyelitis and pyonephrosis above. These diseased ureters are the commonest cause of prolonged suppuration after nephrectomy and often are responsible for the very slow convalesence we frequently encounter.

Before discussing nephrectomy, consider the surgical pathology. I will assume that operation has only been resorted to after the finding of the tubercle bacillus in the urine or that a guinea pig has succumbed to an inocculation. This latter test is far from satisfactory and cannot be compared to repeated examination for the T. B. itself. If there is any amount of pus present, careful technic is sure to find them sooner or later.

In one case bundles of tubercles had been found, nephrectomy performed and I was much disappointed to find an aparently normal kidney, until the pelvis was laid open. Here I found in one of the calices a tuberculous ulcer which had produced the hematuria and given off the tubercle bacilli. No other lesion was present in any section of the kidney. Probably tuberculin and rest in bed might have cured this ulcer. From such a small lesion up to the huge kidney capsule filled with abscesses and pus cavities, there are many pathologic pictures, all of them interesting, with the ureter often as thick thru as the surgeon's thumb.

I shall not attempt to describe for you the classic nephrectomy, for most surgeons have their own steps and methods which they employ, having found them entirely satisfactory which is all that is necessary. I will mention, however, a few little points which I think of interest.

Where shall the skin incision be made, what direction shall it follow and what length? The vertical distance from the crest of the ilium to the lower costal border is rarely over three or four fingers, hence not long enough for the average surgeon to insert his hand. That means, besides the incision being vertical, it must swing forward, following the iliac crest, merely to get the hand within the wound, let alone extracting a kidney often 15 centimeters long. It, therefore, saves much time, gives the surgeon enough room to at once palpate and see the kidney and easily pick up the ureter. Many operations are prolonged by too small an incision. If the kidney is very large, it is better to make the vertical incision well anterior, reflecting the peritoneum. Thru such an anterior incision kidneys almost the size of the head have been removed intact.

After the kidney has been exposed, I next prefer to locate the ureter, picked it up on gauze, freeing it up to the kidney pelvis and down to the pelvic brim. I then clamp and cut it. The perinephritic adhesions are then separated as gently as possible, until the hand passes freely in all directions around the organ, leaving clear the pedicle, containing the renal artery and vein. I now slip a soft rubber catheter clear around the kidney to see that it all is free, and draw it up under the pedicle. This acts as a tractor on the vessels and makes a valuable guide for the renal clamp. The pedicle is then cut and tied with braided silk or linen, and the kidney amputated and lifted out of the wound. If the patient's condition permits, the distal end of the ureter should now be picked up and dissected out as far down as possible, tied and amputated. These old tubes are quite large and filled with tuberculous disease. I see little or nothing gained, theoretically or practically, by treating the stump with carbolic or alcohol.

For drainage there is nothing better than a couple of rubber tubes; they really drain and give the minimum of pain. In many cases the first post-operative week is marked by high fever, 103° to 104°, anorexia and exhaustion. This has been observed not only in nephrectomy for tuberculosis but also in orchidectomy.

For example:—

Clyde W., 29, married, born in Michigan, ex-soldier. After a long illness, finally localized in left epididymis and left seminal vesicle. A painless lump developed in the tail of the epididymis. An examination was made of the bladder and upper urinary tract with negative findings, except for a slight intravesical swelling of the lateral lobes of the prostate. This patient ran an irregular temperature, 101° to 102.5°. He was seen in consultation by a number of men. A diagnosis of tuberculosis of the left epididymis was made and orchidectomy advised.

He was operated on by Dr. Bates. The next day his temperature shot to 106° and remained very high for several days. There was prostration with it. In a week's time it began to fall and since then he has made slow but marked improvement. This epididymis contained a fair sized tuberculous abscess. The patient certainly must have absorbed some toxic material.

This sudden jump in temperature I attribute to the stirring up and absorption of the tuberculous exudate by the large wound surface. Certainly a lot of toxic secretion must escape, especially if an abscess is broken or the kidney ruptured at some point during the dissection or delivery. This is an interesting phenomenon and will bear closer study.

How shall we treat bilateral renal tuberculosis, with one kidney pyonephritic and the other just slightly involved? Here again we have one of those fine questions which can only be answered by a study of the individual, and by that fine surgical sense which is based on experience. Personally I feel that only a very few cases should be operated on. We can perform ever so clever an operation with great speed and dexterity, yet if the patient succumbs in a week or two after the operation, the surgeon is usually charged with the mortality. and much data valuable to the patient and the surgeon are lost.

(5). Do all you can to buoy up your patient mentally, remembering that good results, like many other things in life worth while, are only won by hard work and perseverance.

To sum up, (1) urinary tuberculosis, when discovered, calls for a close accurate study of all the patient's organs to determine the full extent of the disease, a complete physical examination, and if in doubt radiogram or fluoroscopy of the chest, the condition of the lymphatics, evidence of bone tuberculosis, peritoneal involvement, leaving no organ unpalpapted or unpercussed, for it is easy to overlook important clues, because our attention has been focused on the major lesion.

(2). In removing tuberculous tissue be both radical and conservative, radical in removing or draining as much caseous material as possible, and, on the other hand, do not remove organs where the lesion is mild or the diagnosis uncertain or not duly confirmed by the microscope. Our primary object is not to perform an operation but to help restore our patient's health.

(3). The operation employed is only a small part of the treatment in toto. It should be followed by all those rebuilding agents we have at hand—rest, sanatoria, sunlight, forced feeding, tonics, tuberculin and residence in those climatic areas found advantageous to phthisis.

(4). After apparent recovery, these patients should be watched and kept close track of for a long time. How often is a nephrectomy performed, and the patient drops out of one's sight for a year or two, only to return with frequent urination, hematuria, pyuria, and many tubercle bacilli in his urine. It is often too late to help him, for he has believed himself cured, resumed his old life, been on his feet constantly and done many things to aggravate the unhealed lesions the knife did not or could not remove. I think that too often, after wounds have healed, surgical cases are dismissed

CYSTITIS*

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The subject of cystitis can only be treated by a discussion of the several pathologic conditions, of which an inflammation of the urinary bladder is a part. While theoretically cystitis may exist by itself, practically it is always dependent for its inception and continuance upon morbid changes outside the bladder, these changes being of much greater importance than the inflammation of the bladder. For the development of a cystitis two factors must be present, infecting organisms and a lowered resistance of the bladder mucosa.

The introduction of bacteria into the normal bladder, as has been shown by careful and repeated experiments, does not cause inflammation, while the bladder of lowered resistance from whatever cause inevitably becomes infected. The bladder has normally a high resistance to infection. Following cystoscopy, cultures of the urine usually show growths for the first day or two, no inflammation develops and the urine rapidly becomes sterile.

Organisms, also, often pass from the kidney into the bladder over long periods without producing cystitis and when infection occurs it begins near an ureteral orifice, where the toxic material produces the maxium irritation of the vesical mucosa. Attention has recently been called to the fact that, while bladder instrumentation with no resulting infection is a matter of daily office routine, yet the introduction of a catheter by a trained hospital attendant is every once in so often followed by an inflammation of the bladder.

The offered explanation which seems tenable is that bacteria are introduced in both cases but that the condition necessitating the catheterization has lowered the bladder resistance sufficiently to make infection possible. The urinary bladder is merely a dilated portion of a tube running from the kidney to the urethral meatus and inflammation of this dilated portion must necessarily, because of its position, be dependent upon changes in the portions of the tube above or below it.

There are, therefore, only two usual causes of bladder infection, the pouring of pus and bacteria into it from an infected kidney or the prevention of its normal drainage by a contraction of its outlet. The exceptions to this statement are the direct extension of an urethral inflammation, and inflammatory processes outside the bladder, involving and extending thru its wall. If the conception be kept clearly in mind that inflammation of the bladder is dependent upon pathologic changes in other organs, the mistake will be avoided of regarding cystitis as an entity, with resulting improvement in our diagnosis and treatment.

When the cystitis is due to an infection from above, one or both kidneys will show pyelitis, pyelonephritis or pyonephrosis. Cystitis may be due to an infection secondary to neoplasm, calculus or diverticulum. Cystitis dependent upon changes in the bladder outlet is secondary to prostatic hypertrophy, contracture of the vesical neck or urethral stricture. The normal resistance of the bladder being lowered by any of these causes, the actual inflammation will occur when bacteria enter, either thru the blood stream or by direct introduction thru the urethra.

Kelley's conception of the pathology of cystitis is the most acceptable in the light of modern literature. I will quote him. "In acute cystitis the lesions start in the epithelium and extend into the mucosa and submucosa with practically never any involvement of the muscle and perivesical tissue. Beside the usual infiltration there are often focal accumulations of leucocytes, producing small abscesses. Healing starts in the superficial layer, and there is little loss of epithelium."

He logically divides chronic cystitis for pathologic discussion into two classes, depending upon whether or not the changes are secondary to retention. "When retention occurs, whether due to obstruction or trophic changes, the bladder is distended, there is marked trabeculation with marked thickening of the muscular coats, a work hypertrophy. When there has been no retention, the bladder is diminished in capacity, the inner surface is thrown into folds and irregular protuberances by granulation tissue and ulcers.

The epithelium may dip down into the mucosa and form cysts, becoming sometimes typical glands. These cysts are frequently the site of development of carcinoma. The breaking down of these cysts may also occur with the formation of ulcers which may later become encrusted with salts.

Surface epithelium is lost in chronic cystitis and the inflammatory process may extend thru the muscle walls and into the perivesical tissues. In advanced cases the bladder muscle may be replaced by fibrous tissue. In acute cystitis, therefore, with limitation of the inflammation to the mucosa and submucosa and no loss of epithelium, we may expect a return to the normal which is quite impossible with the extensive changes and loss of tissue found in a chronic inflammation."

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*Read before Whitman County Medical Society, Colfax, Wash., April 12, 1920.

The diagnosis of cystitis is, first, the establishment that an inflammation of the bladder exists and, second, the diagnosis of the underlying cause of that inflammation.

This is my procedure in a new case, complaining of frequent painful urination. The external genitalia are examined and urethral smears taken. The bladder urine is then drawn by catheter in the case of women, or the urine passed into three glasses in the case of men. Non-catheterized urinary specimens from women are very misleading. The urine is then examined and the number of white and red blood cells in the live specimen and the nature of bacteria present in the stained specimen determined. If bacteria are present I do not usually take cultures. The prostate, vas and vesicle and the uterus and adnexa are then examined. A catheter is passed in male cases to determine the presence or absence of residual urine and bougies to eliminate urethral stricture.

Let me suggest a few simple rules which usually hold.

1. If the patient has frequent painful urination and the bladder urine shows pus and bacteria, there is an inflammation of the bladder.

2. If the patient has frequent painful urination and the urine shows blood alone, stone or neoplasm are likely.

3. If the patient has frequent painful urination and the urine shows no pus, blood nor bacteria, urethritis, trigonitis or extra cystic pressure are probable.

A few points should be remembered about the bacteriology of these cases. The number of bacteria present may vary remarkably. Colon bacilli particularly may be absent one day and occur in showers the next; also the bladder may remain inflamed for some time after the pyelitis has cleared up.

One infecting agent may supplant another and, most important of all, a secondary infection may be implanted on a tuberculosis, so that the presence of a large number of staphylococci, for instance, may cause us to overlook the less easily found tubercle bacilli. If no bacteria are found in a cystitis case, a possible tuberculosis should be our first thought. Repeated urinary examinations and animal inoculations are necessary in these cases. As evidence of the importance of this, Braasch states that in his experience 90 per cent of cases of renal tuberculosis have had vesical symptoms for over six months and 50 per cent for over a year.

Rectal examinations will reveal carcinoma of the prostate and inflammation of the lower end of the ureters. Rectal examination of the prostrate for benign hyertrophy is unreliable. The presence or absence of residual urine is a much more valuable guide.

Examination of the reflexes for a possible tabes is important. I believe that gross malpositions of the uterus are necessary before it becomes the causative factor of a cystitis.

X-rays of kidneys, ureters and bladder are of course negative in a very large percentage of these cases, but the one case of which we neglect or postpone having x-ray examination, is the very one in which it would have given valuable information. If the diagnosis is not clear the bladder should be examined and the presence or absence of infection in the kidneys determined.

The treatment of acute cystitis is the treatment of the inflammation of the bladder. The treatment of chronic cystitis is the treatment of the cause underlying the bladder inflammation. In acute cystitis I vary my treatment with the severity of the patient's symptoms. If these are severe, I put the patient to bed on a bland liquid died with forced fluids and hot sitz baths every six hours.

Rectal suppositories of morphine and hyoscyamus are usually necessary in these cases. As the severity of symptoms subsides, and in the less severe cases, I install argyrol in the bladder once or twice daily. Mercurochrome 1 per cent is also useful for bladder instillation. If colon bacilli are present I give formin with sodium benzoate, not less than sixty grains of each in twenty-four hours, as it has been proven that it requires that quantity to render the urine at all antiseptic to colon bacilli. Many cases develop considerable bladder irritation from the formin and, if the colon bacilli are decreasing in number and the bladder becoming more irritable, the formin should be discontinued. Methyelene blue is of value in the cases due to staphylococcus infection, as it inhibits their growth. I do not think other bacteria are affected by internal medication. Hyoscyamus and potassium hydrate are of value in relieving symptoms. Usually within a week the patient's symptoms have subsided sufficiently to allow us to try to find the cause of the cystitis, and I do not feel that the cystitis as such should be treated much longer than that.

The cause of the cystitis must be removed in so far as we are able to do it. A focus of infection in the kidney must be eliminated, and obstruction at the vesical neck or the urethra removed. If this be done, it is surprising how rapidly the symptoms of cystitis disappear, and without the removal of these factors no amount of bladder treatment will produce more than temporary alleviation of symptoms.

When you consider the pathologic changes in a chronic cystitis, it is evident that the bladder in these cases will never become normal. Usually, however, the patient may get a symptomatic cure. As a general proposition treatment of the bladder itself is not necessary, if the cause of the inflammation has been removed.

The contracted bladder, however, can be definitely improved by progressive distention. I believe gradual dilatations are particularly helpful in the tuberculous bladder which does not improve after nephrectomy. Bladder irrigation has been generally abandoned, as irrigation has in surgery generally.

After the subsidence of a pyelitis the bladder will sometimes remain inflamed for sometime. In these cases instillations of silver nitrate often give prompt relief. If residual urine cannot be prevented, as in the tabetic, catheterization from two to four times a day is helpful. After prostatectomy or any cystotomy the bladder has a period of physiologic rest and free drainage which probably accounts for the promptness with which the inflammation subsides. A cystotomy merely for relief of symptoms is necessary in some of the intractable cases, and is often required in advanced carcinoma cases.

I have purposely avoided saying much concerning local treatments of the bladder, as I have wished to emphasize my belief that the recognition and removal of the cause is the all important consideration in the treatment of cystitis.

Surgical Treatment of Abscess. The study of A. W. Adson, Rochester, Minn. (Journal A. M. A., Aug. 21, 1920), is a review of twenty-six cases of brain abscess examined at the Mayo Clinic during the last five years; the diagnosis in twenty-three instances was verified either by operation or by necropsy. For the purpose of detailed study of twenty-six cases are divided into two groups, nonsurgical and surgical cases. Of the seventeen patients who were not operated on, seven died shortly after admission or during the time of observation. Seven had been operated on previously for chronic empyema or lung abscess, or they presented symptoms of bronchiectasis or chronic tuberculosis; five of the seven died; necropsies were performed on four here; one patient died at home. Two patients recovered (the latter are necessarily uncertified cases). Three patients died following a radical mastoid operation for chronic otitis media with subdural abscess. They belonged to a group of thirty-six cases in which the radical mastoid operation was done for chronic otitis media associated with some form of subdural abscess. Nine of the twenty-six patients were operated on for brain abscess; five recovered, and four died shortly after the operation. Of the five patients who recovered, four are now living; one died two years following operation; the cause of death was not reported to us. The four principal etiologic factors were otitic infection, frontal sinusitis, injury to the skull, and hematogenous infection. The abscess was located in the frontal lobe in fourteen patients; in the temporal lobe in four patients; in two in the temporosphenoidal lobe; in one in the occipital lobe; in two in the cerebellar lobe; in one in the midbrain; in one under the temporal lobe, and in one on the cortex, associated with encephalitis. Thirteen patients complained of headache, ten of nausea or projectile vomiting, four of blindness, twelve of jacksonian epilepsy, four of grand mal epilepsy, fourteen of paralysis, sixteen of habitude or coma, two of injury to the skull, nine of meningeal irritation, and ten of fever.

Treatment of Combined Diabetes and Nephritis. In 100 unselected diabetic cases in which examination was made by Frederick M. Allen, J. W. Mitchell, and J. W. Sherrill, New York (Journal A. M. A., Aug. 14, 1920), the blood urea was found below 30 mg. per hundred c.c. in sixty-seven; between 30 and 40 mg. in seventeen; between 40 and 50 in ten, and above 50 in six. The McLean urea index was found below 80 in fourteen cases. Four of these patients were clinically nephritics. In addition, there were twelve cases of hypertension with traces of albuminuria, and seventeen cases with palpably sclerosed peripheral vessels without albumin or hypertension. The treatment of combined diabetes and nephritis is conducted according to the usual principles for the two diseases. Diabetic treatment by means of a high protein diet, gluten bread and the like may be inimical to an associated nephritis with impaired nitrogen excretion; but it is readily possible to adjust the protein ration to both diseases. If meats are forbidden in the treatment of hypertension, the diet of a diabetic with hypertension is seriously limited; but with restriction of salt, such a patient is able to choose his protein at will. In the majority of combined cases the diabetes or the nephritis or both are mild, although sometimes they are severe. There is no serious conflict in the treatment even here. The diabetes does not interfere with protein restriction for the nephritis, or salt restriction for the hypertension. There is an actual problem in providing the necessary calories. This is solved by undernourishing the patient to the point at which he can tolerate 30 gm. of carbohydrate. Incidentally, the unusually low protein ration raises the tolerance for carbohydrate. With this carbohydrate, it is possible to fill up the rest of the diet with fat without acidosis. The relief of the hypertension relieves the heart, and the patient is capable of more exercise and work than before. At the same time, the weakness of diabetes and undernutrition seems not to impair the heart, but is the greatest safeguard against overtaxing. Three illustrative cases, demanding great judgment in treatment, are cited.

NORTHWEST MEDICINE
The Journal of the State Medical Associations of Oregon, Washington, Idaho and Utah.
Devoted to the Interests of the Medical Profession of the Pacific Northwest
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SEPTEMBER, 1920.

EDITORIAL

WASHINGTON LEAGUE FOR THE CONSERVATION OF PUBLIC HEALTH.

During recent years there has been a noticeable increase in the attention paid to public health on the part of federal, state and city officials. This has been stimulated by the experiences of the war, when the care of the public health was supervised by official authority. It has often been noticed in the passage of legislative acts regulating public health matters, that the supervision and development of such measures have been intrusted to politicians or individuals who have never had special training along these lines, while physicans, whose training and life-long experience have best fitted them for the inauguration and execution of measures of this character, have been ignored or relegated to subordinate positions in matters vitally affecting the welfare of the public. The failure of the medical profession to utilize its collective efforts in securing medical legislation of this character has inspired bodies of the profession in some states to organize to assist in the accomplishment of desirable results of this nature.

During the past summer this question has been under consideration by a group of Washington physicians representing the leading cities and, as the result of a series of meetings, they have organized the Washington League for the Conservation of Public Health, modeled after a similar organization now in existence in the state of California. The objects of the league are summarized as follows:

To investigate, collect, prepare and disseminate all obtainable data practically touching the conservation, improvement, and protection of the public health and put the principles of preventive medicine and surgery into general practical effect; to create committees of specialists to study, discuss, analyze and report on the causes and effects of the specific diseases and conditons that constitute community health problems, factory sanitation and industrial hygiene; to publish and circulate health bulletins, leaflets, pamphlets and other appropriate literature, to educate and organize public opinion, make the important facts of hygiene household knowledge, and thereby eradicate popular errors and unsound views; to stimulate scientific research to solve the doubtful public health problems and make known to the public, by appropriate literature, timely lectures and thru the press, the problems and progress of scientific medicine; to promote a wider and more accurate knowledge and adoption of preventive measures in the home, the school, the store, the factory, farm, and mine; to study sympathetically and systematically from the humanitarian and utilitarian standpoint such social problems as are the cause or effect of disease; to investigate the environmental causes of disease and the most efficacious methods of prevention and treatment of communicable diseases, to seek to improve living and working conditions and suggest desirable legislation to promote and protect the public health; to undertake independent and impartial sociological and experimental medical research, and comprehensive investigation into the difference between urban and rural mortality, conditions affecting various sections and localities of Washington, including the problems of tuberculosis, cancer and pneumonia, protection of infant life and maternity, milk, food, water supply and general sanitation; to conduct a bureau of research and information which will investigate and furnish health statistics to all members, to cooperating organizations and societies and to the press; and generally to initiate, encourage, foster, aid and promote such activities as tend to advance, conserve and protect the public health.

It is planned to have the league state-wide in its scope, and solicits the membership of every qualified physician and surgeon in the state of Washington. The inauguration of this public health league will be a prominent feature of the meeting of the state association to be held in Tacoma. Appreciating its importance, arrangements have been made for a luncheon to be held in that city September 16, when the organization and working plans will be explained in detail. All members of the profession in this state are urged to be present at this meeting and to attend the luncheon.

ANNUAL MEETING OF THE UTAH STATE MEDICAL ASSOCIATION.

The twenty-sixth annual meeting of the Utah State Medical Association will be held in Ogden, Sept. 7-8. The annual banquet will be held on the evening of Sept. 7, when the President's address will be read. The following program will be presented:

PROGRAM

Tuesday, Sept. 7.

9:30 a. m.

Meeting of Council.

10:00 a. m.

Surgery of the Gall Bladder and Ducts. (Illustrated with Lantern Slides). George W. Crile, Cleveland, Ohio.

Discussion—R. S. Joyce, A. J. Hosmer, John F. Critchlow, J. C. Landenberger, John W. Aird and J. E. Tyree.

12 Noon

Meeting of the House of Delegates.

2:00 p. m.

Tuberculids in Their Relation to the General Problem of Tuberculosis. (Illustrated with Lantern Slides). John H. Stokes, Rochester, Minn.

Discussion—G. G. Richards, T. A. Flood, G. J. Field and Wm. L. Rich.

Active Immunization Against Diphtheria. Helmina Jeidell, Salt Lake.

Discussion—E. H. Smith, W. H. Blood and H. R. McGee.

Hydatid Mole. H. P. Kirtley, Salt Lake.

Discussion—R. S. Allison, Warren A Colton, T. B. Budge and T. J. Howells.

Wednesday, Sept. 8.

9:00 a. m.

A Simplified Technic for Administering Salvarsanized Serum. C. L. Shields, Salt Lake.

Discussion—C. E. Brain, H. B. Sprague and F. F. Hatch.

Luetic Invasion of the Nervous System. A. A. Robinson, Ogden.

Discussion—J. J. Galligan and J. U. Giesy.

Obstructions at the Bladder Neck. (Illustrated with Lantern Slides). John R. Caulk, St. Louis, Mo.

Discussion—F. A. Goeltz, George F. Roberts, Warren Shepherd and W. G. Schulte.

The Treatment of Mastoiditis. W. D. Donoher, Salt Lake.

Discussion—F. H. Raley, W. M. Stookey and E. G. Gowans.

2:00 p. m.

Further Work With Pneumoperitoneum, Peritoneoscopy and the X-Rays. (Illustrated with Lantern Slides). Benjamin S. Orndoff, Chicago.

Discussion—C. W. Stewart, Warren Benjamin, E. H. Smith and Ezra C. Rich.

Cooperation in Public Health Work. Joseph R. Morrell, Ogden.

Discussion—T. B. Beatty, E. G. Gowans, B. W. Black and George A. Cochran.

Public Health. Samuel H. Paul, Salt Lake.

Discussion—Roy Groesbeck, Willard C. Christopherson, Heber J. Sears and M. M. Critchlow.

Report of the House of Delegates.

Installation of the President.

THE MEETING AT TACOMA.

The attention of our readers is again called to the meeting of the Washington State Medical Association which will be held in Tacoma on Thursday and Friday, the 16th and 17th of this month. The program which was published last month will be supplemented by other features of importance and interest. A cordial invitation is extended to the physicians of Oregon and Idaho to attend. Being the only medical meeting of the Northwest held in the fall of this year, it is anticipated that a large number will take advantage of a brief vacation to be present.

NOTICE OF ADVERTISEMENTS.

Following our custom of featuring our new advertisers from time to time we wish to call attention to these of this and the last month or two, which are indorsed as ethical and worthy of the consideration of our readers, as well as others which have been suspended for a time.

The Marshalltown Laboratories (7) presents Cellosilk, the waterproof surgical dressing. Jay C. Rhodes (19) has established an instrument manufactory and repair establishment in Seattle. The Dry Milk Company (18) is advertising Dryco, a milk for infants which has been endorsed by the pediatricians. Mead Johnson and Company (12) offers its well known product, Dextri-Maltose, used for babies and invalids. The H. K. Mulford Company (8) reappears with an advertisement of its new Diphtheria Antitoxin. The Victor Electric Corporation (25) resumes the presentation of its well known products. The Meadows Sanatorium, of Seattle, (6) for nervous and mental diseases appears with an enlarged advertisement, as does the Cedar Crest Farm, of Portland, (4) which cares for patients with pulmonary diseases.

MEDICAL NOTES

OREGON

Newly Licensed Practitioners. At the June session of the medical examing board, fifty-six applicants appeared, of whom forty were successful in passing the examination and were duly licensed.

The list is as follows: Allen R. Anderson, Jesse LeRoy Block, Leo B. Bouvy, Elmer E. Carlson, Nicholas S. C. Checkos, True D. Coe, Helen George Dennis, A. J. Douglas, Gavin C. Dyett, W. H. Fahrenbruch, Herbert H. Foskett, Wilmot C. Foster, Wilho A. Groenlund, William Oliver Henry, Arthur G. Hixon, Irene M. Hunt, Harry S. Irvine, Robert W. Langley, Albert Lessing, Constance J. Klecar, A. F. Walter Kresse, Robert W. Langley, Albert Lessing, Richard F. McKaig, Louis Manning Munson, Thomas D. Remeley, John William Rose, Albert R. Sargeant Earl J. Schuster, L. Howard Smith, Raymond R. Staub, Ralph W. Stearns, Edward W. St. Pierre, Thorfinn Tharaldson, Fortunat A. Troie, Estelle Ford Warner, E. Roy Watts, James W. Wheeler, David A. Williams, Paul Woerner, Ivan M. Wooley, Glenn M. Yount.

The Pacific Coast Oto-Ophthalmological Society. This society held its annual meeting at Portland, July 29-30, with one hundred physicians in session from the Rocky Mountain and Pacific Coast States. Papers were presented on the various subjects appropriate to this society by well known eye, ear, nose and throat specialists from all of the Pacific Coast and Northwest states. It was reported as being one of the most pleasing and profitable meetings in the history of the society.

The officers elected for the ensuing year are as follows: President, George W. Swift, Seattle; First Vice-President, E. E. Maxey, Boise, Ida.; Second Vice-President, J. O. Chapelle, Chico, Calif.; Secretary-Treasurer, E. E. Wheeler, Tacoma.

A New Hospital. Drs. Shearer and Crank, of Tillamook, have recently fitted rooms in the second story of a store building for a hospital. It has a capacity for ten patients and will later be developed into a building of its own.

Erection of a County Hospital. A recent meeting of medical men and interested citizens was held at Cornelius to consider the erection of a Washington County Hospital. The city has offered a tract containing eight acres, on which it is proposed to erect a $75,000 hospital.

A Medical Industry. Oregon has become famous for production of cascara bark. The gathering of this bark centers about Roseburg, whence it is shipped by the carload to the eastern markets. Its demand is such that this has become a profitable enterprise.

Closed on Account of Cleo's Death. Dr. A. E. Rockey, of Portland, closed his office for a real funeral. It was his donkey, Cleopatra, who died last month after serving for more than ten years. She was a famous donkey, one of the best known animals in Portland. One feels real sorrow when losing a pet of that kind.

Dr. H. D. Curtis, formerly of Hot Springs, Ark., has located for practice in Astoria. He served in the army during the war and for a time practised in Seattle.

Heads State Elks. Dr. J. H. Rosenberg, of Prineville, was elected president of the Oregon State Elks Association at the annual convention recently held in Salem.

WASHINGTON

Quack Medicine Seized. Last month the federal agents seized two shipments of medicine in Seattle which failed to conform to the Federal Food and Drugs Act. This is part of the nation wide attempt to stop the sale of fraudulent remedies and those which make extravagant curative claims. These medicines were claimed to be mislabeled as to their curative and therapeutic effects.

Government Hospital Chosen. The U. S. Public Health Service has designated Centralia as a hospital center for medical and surgical treatment for service men under the War Risk Insurance Act. The government officials selected the Scace Hospital as fulfilling government requirements. Dr. David Livingstone will be in charge of the hospital with several local physicians as assistants.

Cowlitz County Medical Society held its annual meeting in Woodland last month. The following officers were elected for the ensuing year: Pres. E. C. Hackett, Kelso; Vice-Pres., L. S. Roach, Kalama; Sec'y., L. M. Sims, Kalama. Dr. Roach was elected delegate to the state association meeting.

Physician Injured. Dr. G. B. McCulloch, of Seattle, sustained severe injuries last month while driving near Cashmere. His automobile rolled over an embankment, dropping him out on the first revolution and landing right side up at the bottom. The doctor suffered several broken ribs, a lacerated jaw and other bruises.

Manager of Red Cross. Dr. J. E. Crichton, of Seattle, has been appointed manager of the Northwest Division of the Red Cross. In addition to these duties he will direct the Health Department of the Red Cross of Washington, Oregon, Idaho and Alaska.

Dr. R. J. Alcorn, who has recently practised at Grangeville, Ida., has moved to Collville, where he will continue practice.

Dr. J. E. Strain who has recently practised in Camas, where he served as city health officer, has moved to Vancouver where he will continue practice.

Dr. Julian P. Johnson, who has served for several years in the navy, has obtained his discharge and has settled for practice at Bremerton.

Dr. Gordon Whitcomb, of Monroe, has moved to Everett, where he is established for practice.

Dr. A. G. Ganzel, of Nebraska, has located for practice at Prescott.

IDAHO

New Health Officer Appointed. R. H. Pratt was last month appointed health officer at Boise to succeed L. P. Pfirman, and Dr. F. W. Almond was appointed city physician to succeed J. M. Downs. Mr.

Pratt for several years has been a traveling salesman.

Director of Public Health Service. Dr. F. W. Almond of Boise was last month appointed Director of the Bureau of Public Health Service, Department of Public Welfare, to succeed Dr. E. E. Laubaugh, resigned. The doctor was appointed city physician the first of last month.

Nurses Home Provided. St. Anthony's Hospital at Pocatello has been greatly improved by securing a home for the nurses in an adjacent building. Other improvements have also been made in the hospital.

Physician Injured. Dr. H. W. Arnor, of Lewiston, was severely injured last month when the brakes on his automobile failed to hold when descending a steep grade. While going at a terrific speed his car turned over, landing on the doctor. He sustained two broken ribs, and injured shoulder and arm.

Medical Wedding. Dr. Earl J. Jones, of Roberts, was married to Miss Bessie May Bagley of Witchita, Kansas, on August 13.

OBITUARIES.

Dr. Robert Kincaid died in Seattle, Wash., Aug-15, after a year's illness. He was born in County Donegal, Ireland, in 1832. At the age of 15 he went to Canada. He graduated from Queens University, Ontario, in 1863. Later he graduated from Bellevue Hospital Medical School, New York. He served as surgeon in the civil war, and saw active service in many engagements. At one time he was a member of the Canadian Parliament and for twenty-four years he acted as coroner. In 1889 he moved to Olympia where he practised until two years ago. For fourteen years he was Health Officer of that city.

Dr. Ephraim W. Barnes died at Lewiston, Ida., August 17, from disease of the heart. He was born in Tuscumbia, Mo., in 1838. He crossed the plains in 1852. He was educated at Christian College, Santa Rosa, Calif., and graduated from the Toland School of Medicine in San Francisco. He practised in California, Oregon and Idaho. He served as a member of the Oregon state legislature. He recently moved from Hermiston, Ore. to Lewiston.

Dr. Ralph M. Gordon died July 6 at his home near Vancouver Wash., from chronic myocarditis. He was 47 years of age, born at Abilene, Kansas. He graduated from the Medical Department of the University of Michigan in 1898. He served for a year as intern in the University Hospital and practised for a time at Stampede Tunnel, Wash., during the construction of the Great Northern R. R. In 1900 he located in Yakima. He spent a year in Europe in 1905, studying eye, ear, nose and throat. On his return he located in Seattle. Later he spent several years on small farms in East Sound and near Vancouver. He specialized in holly trees, having twenty-seven hundred of them at the latter place. He practised at Concrete from 1917 to 1919, when he retired to his farm at Vancouver.

Dr. Richard A. Nunn of Portland, Ore., died at Estacada, August 17, from an overdose of opium. He was born in England and received his academic education at the University of Dublin. He studied medicine in some of the European schools. He first located in Portland in 1882. He was absent for about six years during the war, serving both in England and France. He returned to Portland in July last. He was an eye and ear specialist and was at one time a member of the University of Oregon faculty.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

Diseases of the Intestines and Lower Alimentary Tract. By Anthony Bassler, M. D. Professor of Gastroenterology, Forham University Medical School College and New York Polyclinic Medical School and Hospital, etc. Ilustrated. Coth. 600 Pp. $7.00. F. A. Davis Co., Philadelphia, 1920.

In this work there are preliminary chapters on topographical and histological anatomy, physiology and chemistry of intestinal digestion, roentgenological anatomy and physiology anamnesis, examination of patints and roentgenographic examination. There follows a most exhaustive article on intestinal toxemia, in which the chief causes are believed to be special infections and resulting mechanical obstructions with stasis. The writer attributes such disorders as iritis, choroiditis, color blindness, spots in the vitreous, asthma, myocarditis and arthritis deformans to intestinal toxemia. He also affirms that hyperacidity is due chiefly to intestinal toxemia, and that most cases of appendicitis, colitis, intestinal adhesions, half the cases of ptosis, gallbladder disease, and cirrhosis of the liver are due to the same cause.

Diagnosis is made by urinary examination for indican, indolacetic acid (from saccharo-butyric fermentation, and prolonged examination of feces for bacterial types. Also by x-ray, in which ileal stasis and even incompetent ileocecal valve are evidences of intestinal toxemia, according to the author, as well as colonic stasis—unless actual obstruction exists. The treatment of intestinal toxemia consists in using antiseptics (beta naphtol), milk, egg, cereal, fruit and vegetable diet, massage and exercise, but especially the use of autogenous vaccines of the colon type by mouth, subcutaneously and (especially favored) their rectal instillation. Colonic irrigations are contraindicted. Bran, fruit, and oil enemas are used for constipation.

Stasis Bassler regards as a symptom of infection of the bowel contents and, later, of the mucosa with degeneration of the plexus of Auerbach and Meissner and may either accompany or be secondary to constipation, Jackson's membrane, adhesions, etc., but are more often secondary to intestinal toxemia, and cure should be rather medical than surgical, altho surgery may aid cure. Diagnosis is made by finding abnormal delay in the right and transverse colon by x-ray. There is an excellent review of all organic intestinal diseases. The diagnosis of chronic appendicitis is deemed usually easy, altho without a previous history of acute attacks (Bevan), or x-ray confirmation (Cabot), the reviewer is of the opinion that this is an optimistic view. Diverticuli of the small intestines are regarded of little importance in most cases, altho this opinion is opposed to the large experience of Case. The work is to be highly commended in its treatment of one of the most important fields of medicine, and also because the author regards many mechanical and organic conditions of the intestines as secondary to intestinal toxemia, even tho he be opposing current authority. Such a position only encourages more proof.

WINSLOW.

A Study of the Epidemiology of Tuberculosis, with especial reference to Tuberculosis of the Tropics and of the Negro Race. By George E. Bushnell Ph. D., M .D. Colonel U. S. A. Retired. Hon. Vice-President and Director National Tuberculosis Association of The United States, etc. Cloth. Pp. 221, $2.75. William Wood and Co., New York, 1920.

The reviewer had the good fortune to serve under Col. Bushnell in the Army and all tuberculosis work was under his direct supervision. To him more than any other man belongs the credit for the immense amount of excellent work that was accomplished in the tuberculosis boards and special hospitals devoted to tuberculosis in the Army. The present work brings out strongly thru study of tuberculosis all over the world, the fact that in the more closely settled communities everyone becomes tuberculized before adult life. This is shown by the skin tuberculin test and autopsies, which however miss some ten per cent of cases, for practically all of such populations are tuberculous. The Chinese are most effectively immunized, for with them the morbidity is low, while in civilized communities, the mortality has been reduced, but the morbidity remains fairly constant. To wholly prevent exposure in children would mean greater risk for them when they are exposed (as they are sure to be) of acquiring acute and fatal tuberculosis. Most acute cases result from insufficient exposure and immunity. This is seen in aborigines, as in most infections, where the course is very rapid and fatal after exposure to tuberculosis.

Fishberg brought out this same point very vividly in his classic work and he regards tuberculosis of the lung as a disease of the partly immunized. Bushnell believes that preventing exposure to tuberculosis is impossible for, if the human source could be avoided, bovine infection would be general. In most cases children become more or less infected with the human variety before they receive bovine infection, according to the writer. If all children were given the skin test annually from birth, until it became positive, Bushnell thinks great good would result by furnishing the patient the opportunity for treatment at the time it would do most good, and by affording an immense amount of data in the course of years which would prove of inestimable value. This work he affirms may best be undertaken by the antituberculosis associations.

While the work does not pretend to be a complete text book on tuberculosis, it supplies most interesting and valuable data on the epidemiology of the disease all over the world and particularly as it affects the tropics and the negro race.

WINSLOW.

Epidemic Encephalitis. By Frederick Tilney M. D., Ph. D. Prof. of Neurology, Columbia University; Attending Neurologist, Presbyterian Hospital New York, etc. And Hubert S. Howe A. M., M. D. Instructor of Neurology, Columbia University; Assistant Visiting Neurologist, Presbyterian Hospital, New York, etc. Cloth, 252 Pp. $3.50. Paul B. Hoeber, New York, 1920.

While it is most desirable that our recent knowledge and experience with encephalitis be assembled and classified in the form of a logical, formal, and well arranged book on the subject, yet it is too early to expect that such will be in any way complete. Notwithstanding this authoritative presentation the reviewer must confess to disappointment in the result. The first nine chapters discuss in detail some 20 carefully studied cases under nine types. Then there are seven chapters on etiology, symptoms, diagnosis, prognosis and treatment and, following this, another series of eleven chapters reporting as many selected cases.

Criticism is restricted to differential diagnosis. In regard to cerebrospinal syphilis. The authors rest their diagnosis on positive spinal fluid findings of syphilis. Two objections arise here. All the symptoms of encephalitis may occur in cerebrospinal syphilis with negative Wassermann test, or a syphilitic patient may acquire encephalitis. A provocative Wassermann test may bring out positive reaction in a case considered encephalitis, as in a subject coming under observation. But it is in respect to cerebral tumor that the authors go most astray. It is stated that the presence of optic atrophy, papilledema, vomiting and paroxysmal headache will exclude encephalitis and indicate tumor. And under ocular symptoms, it is affirmed that "moderate degrees of swelling of the disc are found commonly, but never the severer grades of choked disc." Now numbers of cases have occurred in this region with every degree of choked disc, and with paroxysmal headache and vomiting, and many have been the erroneous diagnoses of brain tumor in consequence. The reviewer has reported one such case with autopsy and findings of encephalitis. In fact it may be impossible in some cases to discriminate between brain tumor and encephalitis. The leading opthalmologists will substantiate the foregoing assertion concerning choked disc. Moreover, there are all degrees of papilledema and the writers contradict themselves by saying "moderate swelling of the disc is common in encephalitis", in one place, and, in another, indicate that it is a criterion in cerebral

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tumor. This work is a welcome addition to the literature but our knowledge of encephalitis is yet too nebulous for a didactic presentation of the subject.

WINSLOW.

The Problem of Nervous Breakdown. By Edwin Lancelot Ash, M. D. 299 Pp. The Macmillan Co., New York, 1920.

In a broad and reasonable way this book puts before the reader the views of the author, who is a man of evident experience. He discusses in turn etiology, nervous types and hygiene, while the two chapters at the end have to do with war strain and shell shock. In the beginning proper emphasis is put on the fact that "it is difficult to disentangle the separate causative ailments" and that "as a matter of practical experience one usually finds causes both mental and physical"; and later under treatment the importance of recognizing the relationship between psychologic and physical rest is well indicated. The table of contents places the subject matter in such a fashion that a practitioner may easily find the chapter he wishes. The wording of the text is easy to follow, tho the attention of the reader may be annoyed by the bare word "nerve" used rather as a synonym for "the nervous system."

GULICK

Medical Clinics of North America. Chicago Number. Vol. 3, No. 5, May, 1920. W. B. Saunders Co., Philadelphia and London. $12.00 per year. Issued Bi-monthly.

This number begins with an interesting talk on a case of encephalitis lethargica, by Mix. He finds there is an incubation period of 7 to 14 days in most cases. The reason for rapid pulse in this and other cases is attributed to paralysis of the vagus inhibitory centre (nucleus ambiguus.) Mix also discusses mediastinal tumors with exhibition of a case. He affirms that carcinoma is three times more common than sarcoma, and that a tumor of the anterior and superior mediastinum is more apt to be sarcoma, while one in the posterior mediastinum is usually carcinoma.

Byfield gives the most admirable analysis of the more important causes of errors in diagnosis it has been the good fortune of the reviewer to read. It should be studied by everyone interested in self improvement. Very many diagnostic points not generally known are brought out, such as the fact that chlorosis may have a normal blood picture yet be greatly improved by iron; that bronchiectasis is often multiple and presents no sign of cavity; that pyelitis may be due to kinking of the ureter and be remedied by lifting the kidney up into place; that epigastric hernia is often the cause of a gastric symptom-complex which is cured by operation. He shows the danger of diagnosing scarlatina in the absence of leucocytosis, and "unresolved pneumonia" with a septic temperature. The whole paper is presented in the most logical and practical manner and is considered in relation to six most common causes of error: (1) Incomplete history, (2) incomplete examination, (3) ignorance of pathologic complexes; (4) failure to explain the atypical in a case, (5) laboratory findings vs. common sense, (6) hobbies. It is an article the writer may well be proud of. This number abounds in instructive and valuable articles.

WINSLOW.

Principles of Human Physiology. By Ernest H. Starling, C. M. G., F. R. S. M. D., Hon Sc. D. F. R. C. P. Jodrell professor of Physiology University College, London, The Chapter on Sense Organs Revised and Largely Rewritten by H. Hartridge M. A. M. B. Third Edition. 579 Illustrations. Cloth. 1315 Pp. $7.50. Lea and Febiger, Philadelphia and New York, 1920.

This splendid treatise on physiology has been reviewed in extenso in former editions. In this latest edition many minor corrections and additions have been made to bring the work up-to-date and about 50 new ages have been added on the physiology of vision, by Dr. Hartridge. The work is now one of the great authorities on the subject and cannot be too highly commended.

WINSLOW.

The Duodenal Tube and its Possibilities, by Max Einhorn, M. D., Professor of Medicine at the New York Post graduate Medical School; Visiting Physician to the Lenox Hill Hospital, New York City. Octavo of 122 pages with 51 illustrations. Philadelphia and London. W. B. Saunders Company, 1920. Cloth, $2.50 net.

This is a practical little treatise on the use of the duodenal tube. The first chapter is devoted to the history of the development of the duodenal tube, its description, mode of use, and tests for its arrival in the duodenum. Quantitative and qualitative tests for the presencce of pancreatic ferments in the duodenal contents are described. A diagnosis of ulcer may be made by blood staining of the thread attached to Einhorn's bucket, and the presence of pyloric stenosis by the failure of the duodenal tube to pass after the use of atropine. In the diagnosis of pancreatic and gall-bladder disease variations in the amount of pancreatic ferments and the pathologic appearance of altered bile in the duodenal contents are of value. The writer does not instill magnesium sulphate to aid the flow of bile, neither does he make any mention of the bacterial flora of the duodenal contents which is such an important element in diagnostic work of the duodenal contents, according to recent investigators. The use of the duodenal tube for forced feeding is a very practical and valuable method. Then there is described the use of a duodenal dilating pyloric catheter in infantile stenosis, and an intestinal delineator consisting of a thin, flexible rubber tube thru which runs two wires and a silk thread. At the end there is either a metal ball or tiny bucket. The apparatus is 2 to 3 meters long and the course of the duodenum and small intestine may be mapped out by x-ray with it.

Its more extensive use in examination of duodenal contents will give us data upon which its clinical value will ultimately be determined by internists.

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ORIGINAL CONTRIBUTIONS

THERAPEUTICS OF THICK CEREALS IN DISORDERS OF INFANCY.*

JAY I. DURAND, M. D.

SEATTLE, WASH.

When L. W. Sauer[1], in July, 1918, published the results of thick cereal feeding in twelve cases of pyloric stenosis, he opened a vista which brought joy to the hearts of pediatrists.

These vomiting infants had been the most trying cases which the man encountered who directed the feeding of infants.

The Rammstedt or, more justly, the Fredet operation had made the surgical procedure much simpler and safer than the gastroenterostomy and given surgical relief in the more severe cases. There still remained the border line, neurotic vomiting and milder ones. In these, with stomach tube in hand, the specialist went thru months of watchful waiting for the vomiting to cease and some proper gain in weight to be established and the anxious relatives saw to it that he did not sleep while on watch.

Sauer, who got his inspiration from the work of McClure[2] and Hahn[3], fed these infants on farina, cooked with sugar, milk and water to such a consistency that once down it could not readily be thrown up. He found that these cereal mixtures were well borne, reduced the gastric unrest and passed thru the pylorus better than liquids. He reported twelve cases of pyloric obstruction so treated, with eleven cures and one death from an intercurrent pneumonia.

A year later Langley Porter[4] reported ten cases of hypertrophic pyloric obstruction with ten prompt satisfactory recoveries. He fed them with a thick mixture made from 10 per cent rice flour with dextri-maltose, milk and sugar.

Mixsell used a similar thick cereal in the treatment of those malnutrition cases familiar to us all, which, tho they receive adequate quantities of food and it is apparently well digested, simply will not gain properly. He reports highly satisfactory results.

In the reports so far published, feeding with thick cereals has been shown to be of great value in:

1. Hypertrophic pyloric obstruction.
2. Neurotic vomiting.
3. Certain types of malnutriton without vomiting. To these I wish to add
4. Failure to gain and colic in breast fed infants.

Since the appearance of Sauer's paper I have fed some form of thick cereal to upwards of fifty cases as a part of their day's ration. The ages have ranged from three weeks to nine months; the weights from 4 lb. 12 oz. up. My experience has convinced me that the feeding of these mixtures with 10 per cent and even 15 per cent of starch is safe and often a most valuable therapeutic measure. My cases have in most instances been treated in the home with the mother preparing and administering the food.

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*Read before Forty-Sixth Annual Meeting of Oregon State Medical Association, Portland, Ore., June 3-5, 1920.

Half of my cases are not worth including because they have not been followed up long enough or well enough to make them of value. These were almost entirely the milder vomiting cases, babies from three to six months old, who were not gaining well on ordinary mixtures, and breast fed babies to whom small amounts were given before two or three nursings daily. Many are from the country and surrounding towns. In these cases reports have not been made since the feeding directions were given or have not covered sufficient period to make them of value. In most cases failure to report means that the baby is doing satisfactorily or I would have heard from them.

I am not going to include any except the pyloris obstruction cases; those cases in breast fed infants, in whom there is absence of gain or slow gain; and colic cases. It is interesting to find that all of the cases in which I had made a diagnosis of hypertrophic pyloric obstruction have continued to report, so that my records are complete up to the time when they could be classed as recovered.

I have used in most cases Sauer's formula prepared with:

Farina	4 level tablespoons
Dextri-Maltose	2 level tablespoons
Skimmed milk	6 ounces
Water	8 ounces

This is boiled in a closed double boiler for one and one-half hours. It is given with a teaspoon, placing it well back in the infant's mouth or, as Sauer suggests, by taking a little on end of a wooden tongue depressor, placing it far back in the infant's mouth, and scraping it off with another tongue depressor. The food is taken from a cup immersed in a pan of hot water to keep it warm. One to four tablespoonsfuls are given in place of two or more feedings.

There is sometimes considerable difficulty in getting the infant to take the thick gruel at first, but as a rule vomiting babies, who are generally ravenously hungry, take it very readily. The others learn to take it well after a few days of effort on the part of the nurse.

Dr. Porter's formula called for rice flour 4 tablespoons, dextri-maltose 1 tablespoon, in 20 oz. of fluid. The milk and water proportion, he says, is calculated as in any simple formula. I am not clear as to just what he means by this, but I presume one part of milk to two parts of water in the first weeks, half and half by three months, and two of milk and one of water by five months.

Mixsell used 1 tablespoon of farina to 7 ounces of 1 per cent milk, apparently using no water in the formula. If this is done, water should be given between feedings or, in cases which do not vomit, immediately after, as the cereal mixture alone would hardly supply sufficient fluid.

Eleven of my cases have had definite signs of pyloric obstruction. Of this number nine did well. There was prompt improvement in vomiting and comfort of the patient. In many were surprising gains in weight.

1st case, 20. oz. in the first 19 days.

2nd case, 11 oz. in first 18 days.

3rd case, 24 oz. in 30 days.

4th case, 30 oz. in 30 days.

5th case, feeding begun at four months when baby was 1 lb. 8 oz. below birth weight. 18 oz. gain first 10 days.

6th case, 137 oz. in 61 days.

7th. case, 31 oz. in 23 days.

8th case, at nine weeks weight 5 lb. 10½ oz. 1 lb. 6 oz. below birth weight. Projectile vomiting, peristaltic wave marked, little fecal matter in stools. Rapid improvement and gain. Baby was sent home to the country, as the parents could not afford hospital expense. Weight could not be followed but mother reported at five months baby was above average size for that age.

9th case. One of twins, three weeks premature, lived in a town fifty miles distant. Vomiting improved but had several intercurrent infections. There was only two pounds gain in seven months. Baby died during influenza epidemic from pneumonia.

10th case, physician's child. A child by another mother fourteen years before had gastroenterostomy for the same condition and made good recovery. X-ray taken later showed food passing thru pylorus.

Present case three weeks premature, weight 5 lb. 12 oz. at birth. After six weeks breast feedings, stomach lavage, it weighed 6 lb. 2 oz. Farina begun in place of two feedings. Only 4 oz. gain in three weeks, altho farina feedings were better retained than breast feedings. At two months weight 6 lb. 6 oz.

Operation (Fredet or Rammsted). Child contracted severe cold from mother two days later and died the fifth day from laryngospasm.

11th case. Child of a colleague. Born Feb. 29, 1920, one month premature. Birth weight 5 lb. 2 oz. There was almost no loss in weight.

May 16, 5 lb. 8 oz. Vomiting which had been present from birth, about this time became much more severe. Gain ceased for several days. Peristaltic wave present, no tumor felt. Baby cried a great deal.

Treatment: Four hour feeding interval. Gave barley flour, 1 heaping tablespoon, sugar, 1 level teaspoon, water, 12 ounces boiled. Boiled down to 8 ounces. When warmed should have consistency of jelly, two teaspoonfuls before 10, 2, 6, 10 feedings.

Improvement was marked, vomited much less, crying gradually improved. Weight April 1, 6 lb. 2 oz. April 15, weight 6 lb. 11 oz. May 16, weight, 8 lb. 10 oz. Only five feedings were given in a day. Stools have always been normal.

I have reported this case more in detail, because it is the youngest child to whom I have given thick cereal, and because the formula is given which I have used in the last type of cases, those breast-fed cases which fail to make adequate gain.

The results have been particularly satisfactory, as these cases were all, except two, treated in the home and by the mother. Close supervision was impossible. In many of the cases only two cereal feedings were given daily. The remaining feedings were from the breast or a skimmed milk formula. The thick cereal mixtures in no case produced a serious nutritional disturbance, such as diarrhea or intoxication.

These cases, except for the 8th and 10th, were not extremely severe. In the severe cases, where a few days to a week's trial does not bring improvement and a cessation in weight loss, I should still advise the Fredet operation, as this can be done under local anesthetic with little or no shock and comparatively slight danger.

In the neurotic type of vomiting, feeding with thick cereals works quite as satisfactorily as in the obstruction cases.

There are many breast feeding cases which give us considerable trouble. First of all there are the babies with colic. Some of these are fat and overnourished. Some are much under weight and gain poorly.

At the last meeting of the North Coast Pediatric Society Dr. Current, of Spokane, stated that colic cases were promptly relieved if given one ounce of 3 per cent barley water before nursings. The marked effect on peristalsis noted in giving thick cereals in our pyloric obstruction cases and the similar effect of starch enemas in quieting peristalsis in the large bowel in diarrhea, with relief of gripping pains and tenesmus, made this sound rational. Accordingly I have used the barley water in the overnourished colic cases and the thick barley mixture, spoken of in case 11, in the undernourished babies. The relief from pain has been very gratifying in the majority of cases. I am convinced that it offers a remedy much more rational and more effective than catnip and fennel, soda, peppermint, asafetida or any one of the thousand and one remedies for colic. In the cases which are not gaining the results with the thick barley jelly have surprised me.

Twin babies, a boy and girl, three weeks premature, were brought to me from Yakima. They were five weeks of age. Both were regurgitating some of the food, crying a great deal, bowels constipated. They were being nursed at three hour intervals. Birth weight 4 lb. 12 oz. Weight at examination the girl 5 lb. 1 oz. the boy 5 lb. Barley jelly, 1 teaspoonful, was ordered before three feedings daily and a four hour feeding interval instituted. One week later each baby gained 11 ounces. The stools were normal. The mother said they seemed comfortable and now cried very little.

The result in these cases was particularly brilliant, but in most of the cases in which I have used the barley jelly to supplement mother's milk it has acted as a stimulus to rapid growth. In some of the cases I have made up barley mixtures with part milk and in some cases used dextri-maltose in place of cane sugar.

To summarize. Thick creal mixtures, whether made from farina, rice or barley, may safely be given in amounts of one to four tablespoonfuls at a feeding.

They are better retained than liquid feedings.

They check peristalsis and pass thru the duodenum in pyloric obstruction cases better than fluids.

My results, as well as those of Porter and Sauer, indicate they they should be given a trial before operation is advised.

Thick cereal mixtures are of service in neurotic vomiting, certain types of malnutrition and particularly valuable to supplement breast feedings.

The cereal mixtures, because of their action in allaying excessive peristalsis, are the most effective remedy we have for the treatment of colic in infancy.

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PYLORIC STENOSIS IN INFANTS.*

EUGENE H. SMITH, M. D.
OGDEN, UTAH.

The first scientific exposition of the condition known as pyloric stenosis in infants was made by the Danish pediatrist, Hirschsprung, in 1880. Notwithstanding the very considerable volume of the literature which has since then developed, it is still a subject which will bear review, especially before an audience composed largely of men engaged in general practice.

The term pyloric stenosis in infants, used as the title of this paper, is chosen purposely, as it includes all varieties of obstruction at the lower end of the stomach occurring at this period of life. In one class of cases the obstruction is an organic one, caused by an hypertrophy of the circular muscular fibres of the pylorus, mechanically narrowing its lumen. In another the symptoms are caused by a spasmodic contraction of these same circular fibres. In a third class hypertrophy plus spasm is responsible for the stenosis. Besides these more common varieties which are especially considered in this paper, obstruction is more rarely due to tumor growths arising from the plyoric antrum, and narrowing of the pylorus or first portion of the duodenum by adhesions. Most important from the standpoint of diagnosis and treatment is the differentiation of these forms, especially the question as to the predominance of hypertrophy or spasm in the causation of the obstruction.

Hypertrophy is no doubt a congenital malformation, as it has been found in the fetus before term. Typically, as found at operation or autopsy, it is a hard olive shaped tumor encircling the pylorus. In some cases which I have seen at autopsy the lumen of the pylorus would hardly admit a broom straw. From the fact, however, that usually the symptoms do not manifest themselves until after the lapse of ten days or two weeks, it must be inferred that either the hypertrophy suddenly increases, or that other factors such as edema or spasm are added after the digestive functions of the infant have been established. The later hypothesis is the most probable from a consideration of the development and progress of the condition. Hypertrophic stenosis, therefore, is in most cases probably due to spasm or edema, grafted upon a preexisting congenital malformation.

Besides these cases of hypertrophic stenosis or hypertrophy with spasm or edema, there are undoubtedly cases in which the stenosis is due solely to spasm, a purely functional condition. Further study may reveal that spasm is the cause of more cases of plyoric stenosis in infants than hypertrophy; that, from the fact that these cases are usually milder, they are easily mistaken for other conditions and seldom come to operation or autopsy, the majority of them being at present overlooked.

That such a condition as pylorospasm should occur is not strange in view of the unstable nervous system of the infant, and the frequency with which spasmodic manifestations occur at this age. Incoordination of the muscles of the stomach find their analogy in incoordination of the muscles in other parts of the body. In the digestive tract itself are observed pharyngospasm, cardiospasm and anospasm. Indeed, Hess (*Am. Jour. Dis. of Children,* March, 1914) has found by the use of the duodenal catheter that all of these conditions are likely to exist in infants who have pylorospasm. He holds that there is a neurosis of the alimentary tract, in which any or all of the above conditions may occur; that pylorospasm is a part of this neurosis and is rarely met with as an isolated symptom.

Besides these factors of hypertrophy and spasm, other factors may exist which render the symptoms produced by them more pronounced, such as edema suddenly narrowing an organic stenosis and hyperchlorhydria aggravating a pure spasm. A neurotic inheritance or spasmophilia may underly a certain proportion of cases of spasm. A few striking cases have been reported in which thymic enlargement coexisted with pyloric stenosis, but that it was more than a coincidence remains to be proven. (Rachford, *Arch. of Ped.,* Nov. 1917.)

The symptoms of a well developed case of infantile pyloric stenosis are so clear cut and constant as to be very easy of interpretation, altho no doubt even yet many cases go undiagnosed. The great frequency of its occurrence in the male sex should not be overlooked. The history proceeds about as follows: A well developed baby progresses normally for about two weeks; suddenly it begins to vomit. At first it retains some feedings; later all are rejected, either immediately after feeding or later in the nursing interval. The vomiting becomes projectile in character and large amounts are regurgitated, with surprisingly little inconvenience to the patient. The babe takes the breast with avidity, and for a short time seems normal except for the vomiting. It is usually a "good" baby, and tries to make the best of the situation. Gradually, however, it looses weight, becomes constipated and the situation becomes serious. At this stage, if the condition has not been recognized, it is usually taken from the breast (a grave mistake), and the round of the various artificial foods begun. From this diversity of foods indigestion may be added to the picture. The progress of the case varies with the degree of stenosis and the intelligence with which the case is handled. Very mild cases may recover after a long period of undernourishment, while severe cases constantly loose ground and finally die of starvation. In the later event sudden collapse and death may follow a period, during which the condition has apparently remained stationary for some time, and this possibility should always be borne in mind when counselling delay in severe cases. Conservative measures should not be persisted in, when there is no evidence of improvement after a reasonable trial of non-surgical treatment, as sudden fatal ending may render all treatment useless.

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*Read before the Twenty-Fifth Annual Meeting of Utah State Medical Association, Salt Lake City, Utah, Sept. 9-10, 1919.

The physical signs in these typical cases are very important and suggestive. They are: (1) visible peristalsis, (2) tumor, (3) retention of gastric contents. Visible peristalsis is to be sought immediately after the infant has been fed. Across the distended epigastrium, contrasting markedly with the flat lower abdomen, peristaltic waves proceed from under the left costal arch downward and to the right toward the pylorus. These waves follow each other in an orderly manner, and often present a striking picture. In some cases it may be necessary to draw the finger across the epigastrium or flick the abdominal wall with the finger to excite the waves to their greatest visibility. Ballooning with the upper edge below the middle of a line drawn from the zyphoid to the umbilicus should be differentiated from distention of the transverse colon.

Tumor, when present, is to be found to the right and a little above the umbilicus. It is best felt when the stomach is empty. It is hard in consistency and resembles an almond in size and shape. In some cases presenting unmistakable signs of marked stenosis, a tumor may not be felt on ordinary physical examination. In such cases light anesthesia may be of great assistance.

Retention is best determined by aspiration of the stomach contents at varying times after the taking of food. It is also very easily demonstrated by the x-ray after the addition of a small amount of barium to the usual feeding.

The above typical history and physical signs, when present, are unmistakable evidence of pyloric stenosis, usually of the hypertrophic type, and the diagnosis is easily made. The reverse is the case when one or more of the important signs are absent, the history atypical, or all of the symptoms very mild. The history of these atypical cases may show a late development of vomiting, in which event the picture is often obscured by indigestion, the result of unintelligent feeding. This is more likely to occur, when spasm rather than hypertrophy predominates. When it does occur, vomiting may not follow every feeding; in fact, a day or two may elapse during which the infant may retain all or most of its food. Here also spasm is usually responsible for the varying symptoms, but hypertrophy cannot be entirely ruled out, since remissions may occur when it is known to be present.

Wasting may be rapid or slow. If slow, the stenosis is only partial, and the patient may recover eventually without operation.

Regarding physical signs, tumor may be present in case of pure spasm. In these cases it may be found only at certain times. Cowie (*Am. Jour. Dis. of Child.*, Mich. 1913) reports an observation of spasmodic tumor occurring during laparotomy, a pyloroplasty. He says: "Immediately following the tight contraction of the pylorus (which occurred twice), which becomes as hard as a piece of India rubber, the peristaltic waves of the stomach brought the organ almost completely out of the abdominal wound. It receded, and after a short interval went thru a similar but less marked phase."

Hyperacidity may delay emptying and cause spasm. In doubtful cases an alkali should be given and further observations on the time and degree of emptying made. High fat also delays the passage of food into the duodenum. Retention, of course, varies with the degree of stenosis, and the part played by spasm in the individual case can be fairly accurately determined by a close observation of its variations and the amount of food retained.

Visible peristalsis may occur with hypertrophy or pure spasm. It is a very significant symptom, but must not be relied upon entirely in making a diagnosis of organic stenosis. It may even occur in mild dyspepsia. Hess says that ballooning of the stomach is the mildest form of disturbance of the gastric musculature; that more severe degrees may be evidenced progressively by visible peristalsis, peristaltic tumor and hour-glass spasm.

In the study of these cases, in which the symptoms and physical signs are more or less atypical and confusing, it is desirable to have recourse to the more technical diagnostic procedures, such as stomach analysis, the x-ray and the duodenal catheter. But since all of these tests are fairly easy of performance and within the reach of most physicians, they should be used in all cases where the slightest doubt exists as to the nature of the condition.

In the treatment of these conditions the physician is confronted with a grave responsibility. No infant should be allowed to starve to death for lack of an accurate diagnosis or radical treatment when necessary. It is a perplexing question to decide when the safe limit of conservative treatment has been reached and when operation is imperative. The danger of sudden collapse should always be borne in mind, and the child given the benefit of surgical treatment before it is too late. Hutchinson, of London, says that practically all cases will recover under medical treatment; but this extreme conservation is dangerous. On the other hand, it is not necessary in all cases to follow the more radical, tho perhaps less dangerous advice, of those who hold that all cases of organic stenosis should be treated surgically. Holt's rules would seem a safe guide in deciding upon the advisability of operating. If when first seen there is rapid loss of weight and the symptoms severe, operate. If there is no improvement after two or three weeks of medical treatment, operate.

Very necessary for successful treatment is the maintenance of breast feeding. Never should an infant suffering from stenosis be weaned on the supposition that the mother's milk does not agree. If, however, the mistake has been made, and breast milk is not available, some form of evaporated or dried milk formula will probably serve the best, since the curd will be finer and the food will more readily pass the pylorus. Sauer (*Arch. Ped.* July, 1918) reports a considerable measure of success from feeding these infants with a thick farinaceous gruel. This semi-fluid mass seems to be less likely to be regurgitated than are the thinner liquids, and, being longer retained, is more apt to find its way through the pylorus. He reports favorable results in eleven out of twelve cases fed with this formula.

In view of the frequent occurrence of hyperchlorhydria, sufficient alkali in the form of bicarbonate of soda or citrate of soda should be added to the feedings to overcome the excess of acid. Low fats should be the rule, since they delay the emptying time of the stomach. Feeding intervals should be sufficiently long to allow of all the emptying possible. Three hours is perhaps a reasonable time, tho some infants may do better on longer or shorter periods. Care should be used not to overfill the stomach at any time.

Stomach lavage is a very useful measure in all forms of stenosis. Stagnant food substances are removed, and the sedation resulting from this procedure tends to lessen the irritability of the stomach. It should be done once or twice a day, and any intelligent mother can easily be taught the technic of its performance.

Of medicinal measures, atropine in my hands has proven very useful. The well known property of this drug of relaxing the spasm of the pylorus is brought into play, and by its use this element in the condition is materially modified. It is preferably given in the form of the alkaloid itself. Infants bear it well, and to obtain the best results it should be pushed to its physiologic effect on the skin. I have seen serious vomiting cease under its use and feel that it should be given a trial in all cases where conservative measures are at all advisable. In aggravated cases the hypodermic administration of atropine may be used in order to quickly determine the degree of spasm. It cannot, of course, dissolve the hypertrophic circular fibres but, as we have seen, most cases combine both an hypertrophic and a spasmodic element, and the later is often combatted successfully by this drug.

Operative treatment has been made much safer and rendered more simple by the introduction of the Rammstedt pyloroplasty. This operation consists simply in cutting down upon the pyloric tumor, severing all the hypertrophic circular fibres transversely, allowing them to retract and the mucous membrane to herniate into the wound.

The stenosis being thus relieved, the pylorus is dropped back into its place and the abdomen closed. The operative dangers are cutting too deeply and buttonholing the mucous membrane, and rarely hemorrhage. In the event of the former accident, the wound of the mucosa should be promptly hemorrhage. In the event of the former accontrol any bleeding points which may be encountered. With care to avoid these dangers, the operation is simplicity itself. Its advantages are the short time required for its performance, thus reducing the danger of shock, and the fact that, the mucous membrane remaining intact, feeding can be resumed almost immediately. The troublesome diarrhea so often encountered following gastroenterostomy is avoided, and the physiology of the stomach and intestine scarcely interfered with. It has been noted in cases coming to autopsy months afterwards, that the tumor has disappeared and that the pylorus is practically normal. Feeding after operation should be begun cautiously with diluted breast milk in very small quantities and at fairly short intervals. It can be increased comparatively rapidly, however, and the results are eminently satisfactory.

MEMORANDA.

Every case of persistent vomiting occurring in a young infant should be carefully investigated with the possibility of stenosis of the pylorus in mind.

In milder cases the possibility of spasmodic obstruction should be considered, and the relation of the vomiting to any existing nervous diathesis should be investigated. As in adults, gastrointestinal symptoms may have an origin outside the abdominal cavity. In this connection the unstable equilibrium of the infant's nervous organization should not be lost sight of.

Improper food is not the only cause of vomiting. Sometimes the receptacle is deranged physiologically, mechanically or both.

Changes in an infants food, especially if from mother's milk, should only be made for sufficient cause, with a rational idea of what is to be accomplished, and with an adequate appreciation of the responsibility undertaken .

No child should be allowed to die of starvation on account of pyloric stenosis. An operative death, even, indicates that an attempt was made to relieve the condition.

BREAST AND ARTIFICIAL FEEDING.*

P. D. McCORNACK, M. D.

SPOKANE, WASH.

It is unnecessary to dwell on the importance of breast feeding for the life and growth of the infant. Doctors are, however, too often convinced against their own judgment, by the complaint of the parents or the actions of the infant, that the continuation of breast feeding is impossible.

The work of Dr. Herman Schwartz, at Baltimore, and Dr. Jules Sedgwick, of Minneapolis, reveals the wonderful results that can be obtained in increasing the number of mothers who can nurse their babies simply by the persistence of breast feeding. With careful instructions to mothers 96 per cent of 1501 cases at Baltimore were able to take the breast one month or less, 88 per cent were on the breast for three months and 77 per cent for six months.

Many fallacies concerning breast feeding have assumed such wide-spread acceptance as to become considered as facts. Many times a diagnosis of "poor" breast milk is made on the failue of the baby to grow (but we must remember that many fail to grow on very rich milk) or it is called "poor" milk if it appears pale by examining a few drops in a teaspoon. In reality breast milk may be poor in quantity, but almost never in quality, and the ordinary chemical examination is usually valueless, because the composition of the milk varies with each feeding and also with the time of the individual nursing. In many cases the diet of the mother is so restricted that she begins to wonder if there is anything she can eat. To follow the advice of all her consultants would require a diet of nothing hot or cold, nothing sweet or sour, and nothing solid or liquid.

A nursing mother can and should eat what is proper for any woman, and fluids only in proportion to her thirst. She should work some, spend some time out of doors and sleep during the day. Many a woman believes herself to be one of those strange mothers of peculiar make-up which makes it impossible for her to nurse her child, and often all she needs is the assurance that she can and must nurse her infant. The onset of menstruation is not an indication for weaning, no more than the occurence of diseases like scarlet fever, typhoid or surgical operation etc., unless the strength of the mother needs to be conserved. Colic on the part of the baby is no indication for removal from the breast.

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*Read before the Twenty-Eighth Annual Meeting of Idaho State Medical Association, Coeur D'Alene, Ida., June 10-11, 1920.

Open pulmonary tuberculosis calls for immediate stopping of breast feeding. To furnish additional food by replacing a nursing or alternating breast and artificial food rather than by offering the supplemental food immediately after each breast, is one of the most frequent causes of the breast drying up. All babies at one time or another while nursing will have stools which are frequent, green, with curds, or with mucus, and still thrive and be happy, and stools of these types are of no serious significance. A constant gain in weight of at least four ounces a week is the only definite indication of good health in a baby, and if this gain *does occur,* such things as sleeplessness, crying, colic and "bad" stools do not call for a change in food.

Many babies have complete nervous exhaustion from too much handling and over attention. They do not digest their food well because of this, but the breast milk is blamed for the condition and the baby is removed from the breast.

These remarks have all been preliminary to the discussion of the maintenance of breast feeding. A breast supplies an amount of milk in direct proportion to the demand made on it, and if this demand is persistent, successful lactation will be obtained. This increased demand comes from the infant and then by thoroly emptying the breast by expression. In case the baby is too weak to make this increased demand, the breast should be stimulated by manual expression which can be taught the mother. The method of expression of breast milk which is used with great success in the institution, maintenance and reinstitution of breast feeding at the clinics of Dr. Sedgwick and his associates at Minneapolis is carried out as follows: The breast is grasped one or two cm. back of the colored areola, and a milking motion is carried out toward the nipples. To massage the breast gland itself is of no value.

The feedings should be every three or four hours on a regular schedule for as long as fifteen to twenty minutes. The mother can have any schedule she wishes but must follow it day after day. Night feedings should be avoided so far as possible and the baby should never be allowed at the breast for prolonged nursing, which is the most frequent cause of fissured nipples. Breast feedings at long intervals for short duration with few or no night feedings will make lactation not a burden but a pleasure.

Artificial feeding is a problem to be attacked in many ways, of which whole milk dilutions, top milk formulas and buttermilk and skimmed milk mixtures are the most common. The difficulty of artificial feeding results from the individuality of the baby, which makes it impossible to feed all babies in the same manner. The addition of sugar to the formulas is required to approach the percentage of carbohydrate in human milk and thus increase the food value. Artificial feeding is of great value when used supplemental to the breast, and should always be given immediately after the breast and not in place of the nursing. Whole milk dilution is the most frequently used means of attacking the problem.

It is best to study the baby's tolerance for the various food elements and give a well balanced mixture. Some schools rely on percentage formulas alone, while others use the caloric method. A combination of the two, one checking the other seems most dependable. The mixture reaches undiluted cow's milk at about nine months of age. The amount in ounces per feeding may be estimated by adding two to the age in months up to six months and the baby should never get more than eight ounces at a feeding. Until about a year of age the milk is boiled for three minutes to kill or inhibit the growth of the bacteria and to obtain a fine flocculent curd.

The use of albumen milk and Keller's Malt soup is advisable in certain severe feeding cases and often remarkable results are obtained. The proprietary baby foods have a place in artificial feeding, but must be used with caution, because of the high carbohydrate percentage most of them contain. A severe criticism of many of these foods is that they are advertised widely as the ideal baby food, something which does not exist in the absence of breast milk. They are usually a very one sided diet and we often see scurvy and rickets result from their use. The tendency now is to institute other things in the diet early, beginning with fruit juices at four months, then broth about the sixth, cereal the seventh and vegetables the eighth month.

CARE OF THE BABY.*

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The inspiration for writing under the above title comes from seeing so many new born babies suffering, both from omissions and commissions, that we felt something beneficial might be said that would cause physicians generally to give more thought and care to the babies they deliver, resulting ultimately in preserving some lives at least.

There is nothing mysterious about the care of a new born baby, but there is a general negligence among physicians doing obstetrics of the importance to the family of the new arrival. It is too often considered as a by-product, with no provisions made in case it does not cry readily or is not normal. Many babies are lost for need of someone skilled in handling the immediate needs, while the accoucher is necessarily busy with the mother.

This discussion is to consider some of the things to do as well as some not to do, and if possible jarr those erring loose from some of their fallacies, and offer appropriate solution as the author sees it.

Even in our best hospitals this necessity is often neglected. The nurses are often inadequately trained, and have no definite idea as to the exact methods to be pursued. A darkened, quiet room at a temperature of 75° F. with fresh air should be prepared, in which the crib, heated to 100° with hot water bottles, should be ready and the baby should be placed there as quickly as possible after the physician has delivered it to the nurse. It should be left alone for several hours, watched carefully for any symptoms of unfavorable development, and not disturbed for an immediate bath, as is usually the case. There is no hurry in presenting it to the mother.

There seems no reason for mentioning the eyes, other than to say that silver or its salts in appropriate strength should be used in every case. The cord should be cut short, dressed dry, and not disturbed at all except for inspection. Following ligation of the cord, the physician can make careful and hurried examination for malformations and deformities. Be sure to look carefully for imperforate anus and cleft palate. At the same time see that the cry is vigorous, and respiration is not interfered with. At this point I want to make a plea for carefulness in efforts at resuscitation, as many injuries, some serious, may occur from roughness.

Weighing, not generally considered important, is a serious matter. Be sure the weight is correct or tell the parents it is a guess. I have seen mothers greatly disturbed at the end of the month, because the baby had not regained its birth weight, and all the evidence pointed to an incorrect first weight; this, however, does not satisfy. It is not safe to prophesy that a given baby will gain according to some of the rules we have learned. There are normal happy babies, that do not regain their birth weight in the first month.

The bath is a matter that does not receive the care it should. We believe too great an effort to get the baby clean at the first bath is generally a mistake, and in many instances is a vicious procedure. If there is much vernix, it should be well oiled preferably with pure sterile olive oil, applied and removed with absorbent cotton. If it is not removed easily, it should be left till the next bath, or in fact till it does come off without force. Soap should not be used to remove vernix caseosum, and is not necessary in the first few baths, altho a neutral soap may be used if applied gently, not using gauze or the usual wash cloth. You have all seen cases of dermatitis in the first week. It was due to a rough first bath.

The same rule applies to the mouth. Those cases you have had of sore mouth in the first few days were due to the fact that the nurse felt it her duty to wash out the mouth, and in doing so usually with gauze saturated with boric acid and wrapped around the finger she removed some of the epithelial tissue with the rough gauze and force. If there is mucus in the throat, remove it with a piece of absorbent cotton on a hemostat. All the mouth washing that is necessary may be accomplished with a drink of boiled water. The bath for the first month should be given with water at a temperature of 95°, and the baby should not be put in a tub until the cord has healed.

It is a common custom to follow the bath with powder. It is not necessary, but if it must be used stearate of zinc or starch is probably the best, and should be put on with a powder puff, that there may not be enough to crust and irritate the folds of the skin. If the buttocks or groin become irritated, sterile olive oil is far better than powder.

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*Read before the Twenty-Eighth Annual Meeting of Idaho State Medical Association, Coeur D'Alene, Ida., June 10-11, 1920.

I am of the opinion that too many babies are circumcised. If there is a patulous foreskin, there is no just reason for doing so, in any case in the first few months. After five or six months, if the foreskin has not broken up its own adhesions, in most cases it may be cared for by gently retracting and cleansing. If there is an excessive amount, it may be removed but in doing it cut so that the glans will remain practically covered, as it needs the protection from irritation caused by clothing. Girls as a rule need nothing but cleanliness.

The intestinal tract is deserving of more consideration than it gets. If meconium has passed freely during or shortly after birth, there seems no good reason to expect another movement until there is sufficient residue from food to produce a stool. Not getting milk until the third day, it might be reasonable to expect a movement on the fourth or fifth day. The custom of giving oil on the second day we believe to be vicious. There certainly is little or nothing to move; the intestinal tract is practically sterile at that ime; if oil is given it will so irritate the bowel as to denude some of the epithelial cells from the tract. The green mucus stool produced is a result of the oil and not from infection or constipation, as is often believed.

I believe it is better to let the bowels alone for a while. This may be some time, if the milk is poor in quality and all the solids are absorbed. If something must be given, milk of magnesia in appropriate doses is mild, does the work and does not irritate. I have seen babies at a month weighing less than at birth, due entirely to the initial dose of oil of the second day being repeated at intervals for green stools, who would begin to gain and do well, as soon as the tract had sufficient rest and time to adjust itself to the digestion of its normal food.

The physician is seldom consulted regarding the hair. Parents are proud of a heavy growth of hair, and frequently allude to its beauty, and at the same time will complain of the baby's head sweating. This is due to long hair which is very uncomfortable. It makes them restless at night and increases their tendency to catch cold. The hair should be kept short for these reasons, as well as to increase a better growth later.

The clothing should be arranged to allow perfect freedom of arms and legs. Tapes are much better than pins. There is no need of the band after the cord has healed. The underclothing should be silk and wool, and the undershirt should come down to protect the abdomen, fastening to the diaper. Long dresses are dirt catchers and mentioned only to be condemned. As soon as the child is to be allowed on the floor, make the garments so short that they will not interfere with the legs in creeping or learning to walk. Rompers are probably the best for both boys and girls at this age. All clothing should be supported from the shoulders. You almost never have to advise more clothes. Dress them according to the weather, but especially is it necessary in the hot summer months to undress them sufficiently so that they will not suffer from the heat. Do not change the weight of the underclothes from day to day but arrange outer garments according to the conditions of the weather.

Sleep varies with the babies and age. Let them sleep all they will, waking only for feeding. Do not, however, let them sleep all day, if they in turn will not sleep all night. Better be awake in the day than at night. It is pleasant for the family at least and just as beneficial to the babies. They should have their own bed and should take all sleep in it both day and night. Do not allow them to go to sleep while nursing nor should they be rocked to sleep. Teach them from the beginning to go to bed alone in the dark, to sleep by themselves, and they will expect nothing else. Be sure they are put to bed early and at the same time every night. Do not permit of any disturbance of this routine. This should continue all thru childhood.

Allow for fresh air at all times, regardless of the weather. If it is stormy put on the outer garments, throw the windows wide open and let them play in the house for an hour. If they do not walk, let them lie on the bed with arms and legs free, so they may kick and roll about. That is all the exercise they need, but they do need that. Do not let them get the habit of being in some one's lap; it is bad for both. Teach them not to be afraid of strangers. Crying does no harm. In fact it is of some benefit in the first weeks. Fussing and fretting with them is bad; it disturbs the nervous system. Begin discipline as soon as the cord is tied. It is just as easy to form good habits as bad. Instruct the parents correctly. They are entitled to good advice, and frequenly err for lack of proper instructions definitely given. Lay the foundation well and early, if a normal adult is expected.

A METHOD FOR PREVENTION OF COLIC IN THE NURSING INFANT.*

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Human milk is the ideal food for the human young. This ideal and wonderfully constructed food, in many instances, is not devoid of creating serious trials and tribulations. The first storm encountered on the sea of life of the new-born is usually an attack of colic. The manner and rapidity with which a very few attacks of colic is capable of turning the household topsy-turvy requires no detailed explanation for any member of our profession. Very few infants complete the first year of life without having had attacks of colic of a more or less a severe degree. We are all familiar with and have heard of the "three months colic" and the "six months colic".

Perhaps no other condition is so frequently responsible, during the first six months of infant life, for the discontinuance of breast nursing and the adoption of artificial food as is colic. The laiety are not entirely responsible for this hazardous change, nor can they entirely be blamed for their misconception and misunderstanding for much too frequently is the change made at the suggestion of the family physician. Altogether too frequently is the change made from maternal nursing, on account of colic, to artificial feeding. Thereby the physical well being and life of the infant is immediately and hazardously endangered.

Pediatrists of the present day know and endeavor to teach the public by practically demonstrating that a greater percentage of infants, during the first six months of life, can be and should be given the advantage and opportunity of being nourished on the mother's milk. Serious systemic diseases of the mother or a local condition or disease in the mammary gland itself are the principal and, truthfully speaking, the only real contraindications to breast feeding the infant. Frequently it is necessary to adapt the mother's milk to the infant, just as it is necessary to adapt any artificial food to any infant. Such difficulties involve a consideration of food tolerance and do not necessarily involve a change of food.

Colic in the nursing infant is an acute digestive disturbance in the bowel, characterized by severe spasmodic crying, excruciating abdominal pain, a tensely retracted abdominal wall, a moderately slow pulse, a coolness of hands and of feet, increased arterial tension and frequently a cold perspiration on the skin of more or less the entire body. Decomposition of milk food in the intestinal tract, with a resultant gas formation, is the true factor and underlying cause of colic.

Conditions and causes leading to and producing colic are many and necessitate a thoro consideration of both mother and infant. The development of the infant's digestive tract must always be considered in case of colic. Herein frequently lies the cause of colic. Due to abnormal secretion of digestive agents, the milk may not be thoroly digested, terminating in a decomposition and gas formation producing an attack. Colic occurs more frequently from an excess of protein in the milk than from an excess of either fat or milk sugar (Talbot and Morse). The food ingredients may all be present in normal amounts and still the infant may have indigestion and colic, due to an intolerance to one or more of them. Protein is more frequently in excess in early lactation; it may be in excess from constipation, fatigue and nervousness of the mother, and the mother's lack of proper exercise and sufficient fresh air. Incomplete emptying of the breast at nursings causes an excess in the percentage of protein.

Colic occurs more frequently where the infant's bowel is inactive than where there is an increase in the number of stools. The infant usually takes too much or too rich a food or has an intolerance to one or more ingredients of the milk and most frequently is fed too often. The stools contain mucus and are of a greenish-yellow or greenish-brown color. The odor is not necessarily offensive and is not usually such.

The method of treatment or management of these cases of colic consists in regulation and correction of error in both mother and infant. The mother must be relieved of her constipation by dietetic methods. She must, if necessary, be given a special diet to bring about this result. She must get plenty of rest and sleep and outdoor air and light exercise. The breast must be entirely emptied after each nursing by expressing the remaining milk. The infant must be nursed regularly on a three or four hour schedule and the bowel must be made to act at least twice a day. Oftimes, even after thoroly carrying out these directions, the decomposition of food still continues in the bowel and the gas and colic continues to be very troublesome.

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*Read before the North-Pacific Pediatric Society Seattle, Washington, January 17, 1920.

During the past five years the author has worked out and followed a method which, after constant application in cases of colic of varied severity, has proven very successful in preventing the colicky attacks. Knowing that colic is caused by decomposition of food in the bowel, it was conceived that, by administering a food vehicle which would be antagonistic to a decomposing intestinal medium and which would render an intestinal digestive flora less liable to decomposing changes, this trouble could be prevented in the greater number of instances. The method consists in the giving of from one-half to one ounce of from a 3 per cent to a 4.5 per cent of a warm cereal gruel immediately before each nursing, except the night nursing, and before each and every nursing if necessary. The results obtained have been excellent. This technic has been used in all cases of colic, and requires no alterations, except the amount of the starch mixture required for a certain infant, and the strength of the starch mixture according to the digestive ability and tolerance of a certain infant for a starch food. Very few infants of whatever age have any perceptible difficulty in digesting a 3 per cent starch mixture. The reports of Sauer and of Porter on the starch feeding of infants are sufficiently convincing. There is no doubt that starch as a food is better borne and better tolerated by the infant than we have been not long since led to believe as untrue. By administering cereal gruel in cases of colic, the decomposing culture-field is removed and a less favorable culture medium is established for the development of the intestinal bacteria.

That the diastatic and amylolytic ferments are present in the digestive tract of the greater percentage of infants of all ages has been proven by Moro, Hess and others. Starch is, no doubt, well tolerated during infancy and there are no by-products formed to produce an intestinal toxemia. Oatmeal gruel, wheat gruel and barley gruel contrive the different cereal gruels used. Oatmeal gruel is indicated where there is inactivity of the bowel, as it favors the formation of the volatile fatty acids and for this reason gives a decidedly laxative action. Wheat gruel has very little effect upon peristalsis. Barley gruel has a quieting effect upon the peristaltic action and is indicated in instances where the bowel is overactive.

EXCESSIVE HYPERPYREXIA IN AN INFANT WITH CEREBROSPINAL MENINGITIS.*

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Cases of extreme hyperpyrexia, where the issue is a favorable one, as stated by Couch[1], are sufficently rare to justify recording them in some detail. I have no desire to become involved in so complicated a physiologic question as the origin of thermic disturbance. The statement here that body temperature represents a balance between heat production and heat dissipation will be sufficient[2]. It might not be amiss to refer anyone interested in the complicated factors, without and within the body, influencing thermic disturbance to some of the more recent articles encountered in preparing this paper. [3] [4] [5] [6] [7] [8]

As pointed out by Griffith[9], terminal hyperpyrexia is unfortunately not an infrequent ending of various infections, of which there are many instances in the literature. Fairly and Stewart[10], record instances illustrating, in an epidemic of cerebro-spinal fever in Australia, terminal hyperpyrexia, where the fever was 109° F. and even in one case 109. 6° F. Lowenburg[11] saw a marasmic baby, where the temperature by two different thermometers was 108.3° F. three days before death. Many other similar instances were encountered not mentioned here.

There were not a few instances found in the literature of complete recovery with extreme hyperpyrexia. No doubt a more careful search would have revealed many others. Various acute infections were represented in this group. Some of these are so unusual as to warrant a brief description here. Lt. Williams[12] reports a high temperature in a soldier admitted to an observation camp with influenza, in whom the temperature was 103° F. His temperature continued to rise for twenty-one hours until it reached 108° F., where it remained for forty-five minutes. The patient did not lose consciousness. In seventy-two hours the temperature was normal, and in twenty-six days from the onset he was discharged. Johnson[13] records a similar case in an army nurse with influenza, where the temperature reached 110° F. with recovery.

Thompstone and Bennett[14] describe a peculiar type of fever which they call "hyperpyrexial fever", encountered from time to time in certain parts of the West Coast of Africa, probably a disease with an animal intermediary, occurring in and limited to certain localities. It is characterized by a long period of high fever, sometimes reaching as high as 107° F., hyperpyrexia persisting for fourteen to thirty days. Half the cases die. Couch[1] reports a remarkable hyperpyrexia in a child of three years of age with pneumonia, where the thermometer placed in the axilla and kept there quietly by gently pressing the child's arm against her side, registered 109° F. This was repeated with precisely the same result. The convalescence was as rapid as the onset.

Griffith[9] records two cases of "unusual hyperpyrexia" in pneumonia, with recovery, in children respectively two and a half, and five and a quarter years. In the first case the course was in most respects a typical bronchopneumonia with increasing, and, finally, extensive consolidation. There was a continued tendency to high fever, with a daily maximum of 104° F.—107° F., and on one occasion 108° F.

In the second case on the tenth day the thermometer registered 109° F. with the child unconscious and evidently extremely ill. In twelve hours there was a drop of twelve degrees in temperature. Griffith further cites, as an illustration of the surprising manner in which children sometimes stand unusual hyperpyrexia, the case of a ten-year old girl with typhoid fever, which reached on several occasions 107° F. She rested comfortably and smilingly in her bed.

Heat stroke and heat exhaustion furnish the largest number of cases of unusual hyperpyrexia, where recovery occurs. Gauss and Myer[15], for example, in a series of thirty-eight patients, with a temperature of 110° F. at entrance to the hospital, had a recovery in seven cases. There is some feeling that excessive temperature of 110° F.—112° F., reported as having occurred in hysteria where no physical reason can be found, are not so unfounded as formerly thought.

CASE REPORT.

Girl. Age 10 weeks. Feb. 4, 1919.

Past history: Full term. Breech birth. Birth weight 6 lbs. Breast fed. Born with no external opening of left ear. Progressed normally in weight on breast feedings entirely. Ever since birth has had snuffles a great deal, suggesting obstruction in nose.

Family history: Two other children, living and well. Father and mother well.

Present illness: Took the breast as usual this morning. Cried a great deal afterwards. Stools yellow, one or two a day, but no curds. Has not appeared to have much, if any, fever.

Physical examination: Well developed and well nourished baby. Skin and mucous membranes good color. Head, no retraction. No rigidity of neck made out. Eyes, no nystagmus, no strabismus. Ears, there is complete atresia of left auditory canal. The pinna is much deformed and partly missing. Throat, normal. Glands, cervical, axillary, and inguinal, not enlarged. Lungs, no dullness, no rales, no altered breathing. Abdomen, distended, tympantic, no masses, no tenderness. Spleen not enlarged. Liver palpable one finger's breadth below costal margin. Extremities, no Kernig. Temperature 100° F.

Treatment: I immediately gave a large saline irrigation, and an abundance of green curds and mucus came away. Castor oil two teaspoonsful and breast feedings followed by barley water were ordered.

Progress: On the 6th and 7th, the baby had very little temperature, between 99°F. and 100° F., but was very uncomfortable. Slept poorly, and cried a good deal, with some nasal obstruction. Urine showed no colon infection. On the 8th, the mother had a slight elevation of temperature, 102° F., complained of stiffness and being sore all over. Her physician was advised of the fact and she was ordered to bed with a provisional diagnosis of influenza. Nothing further was elicited on physical examination of the baby on the 9th, but the restlessness, wakefullness, and crying continued to be marked features, and were only partially relieved by colon irrigations. The stools still continued to contain an abundance of curds.

Feb. 9, I did not see the baby but the mother telephoned and reported her temperature to be 100.2° F., with restlessness still continuing.

Feb. 10, The temperature was 102° F. in the morning. The baby appeared drowsy and toxic. Head, fontanelle full. No retraction of neck, no rigidity. Lungs, respirations 80, no rales, no altered breathing, no dullness. There was slight nystagmus with momentary fixing of eye observed twice, otherwise the mental condition appeared normal, baby followed mother's movements about room. A little later in the day there was a general convulson. The temperature by rectum registered 109° F. by three different thermometers. A lumbar puncture was done and a few drops of a turbid spinal fluid were obtained. 15 c. c. of Flexner's serum was given. A bad prognosis was given, pending the laboratory report. Owing to the extensive epidemic of influenza, and influenza in the mother, it was regarded as probably an influenzal meningitis. Four hours later the temperature was 103.4° F. Morphine sulphate, gr. 1/200, was given each six hours.

Laboratory report of smear: Diplococcus intracellular meningitidis (Dr. O. J. West).

Feb. 11, baby quiet. Still under morphine. Lumbar puncture: 5 c.c. slightly cloudy fluid obtained and cultured. 30 c.c. of antimeningicoccic serum given.

Feb. 12, Still under morphine, gr. 1/200, each six or eight hours. Temperature at 9 A. M., 107° F. Pulse 110. With saline irrigation in one hour temperature dropped to 102° F. Lumbar puncture, 8 c.c. blood tinged fluid. 30 c.c. antimeningitic serum given.

Feb. 13, still under morphine sulphate, gr. 1/200, each eight hours. Culture report of spinal fluid of Feb. 11: A pure culture of intracellular diplococcus meningitidis. Temperature at 5 A. M., 98.6°, highest during the day 102° F. Lumbar puncture: 10 c.c. clear fluid obtained. 30 c.c. antimeningitic serum given.

Breast milk 1½ oz. and barley water 1½ oz. each four hours since Feb. 10.

Feb. 14, morphine sulphate discontinued. Temperature reached 102° F. once during day. Wassermann test of spinal fluid of Feb. 12: reaction—negative, Noguchi modification—negative. Lumbar puncture: 15 c.c. clear fluid obtained.

Feb. 15, clear mentally, follows mother about room. Respiration 24. Slight rigidity of neck. Slight Kernig. Fontanelle flat. Temperature reached 102° F. once during day.

Feb. 16, very restless during the night. Temperature not over 100.4° F. since yesterday. Very slight rigidity of neck. Very slight Kernig. Moves hands and feet freely, but cries on being disturbed.

Feb. 18, still cries on being handled. Temperature 99—100.2° F. Spinal fluid of Feb. 14 showed no organisms. Culture of spinal fluid of Feb. 14 showed no growth.

Feb. 19, Temperature normal all day. Slept well. No Kernig. No rigidity of neck.

No bowel movement for twenty-four hours. Very restless last night. Sleeping very little. Very slight convulsion at noon, temperature 101.2° F. Lumbar puncture: 10 c.c. clear fluid. 15 c.c. antimeningitic serum given. Later in the day second convulsion lasting forty-five minutes occurred. Morphine sulphate, gr. 1/200, each eight hours was again begun. A physician who lived next door saw this convulsion and was inclined to think it was more marked on the right side.

Feb. 22, Temperature 100° F. No convulsion. Still on morphine sulphate, gr. 1/200, each eight hours. Report on spinal fluid of Feb. 21: No meningococci found. A few pus cells. Nonnes reaction positive. A stereoscopic x-ray was taken of the skull at this time at the request of some of the consultants to see the bone formation about the left ear. The canal was patent.

Feb. 25, normal temperature three days. No convulsion since Feb. 22. Morphine sulphate, gr. 1/200, omitted except once at night.

Feb. 28, satisfactory progress. The convulsions of Feb. 21 were apparently from some plastic adhesion within the brain itself.

Jan. 5, 1920, there has been a normal progress in its development both mental and physical.

At the time of the extreme hyperpyrexia, on Feb. 10, 1919, two members of this society were present in consultation with me. Altogether there were some six or eight physicians who saw the baby at some stage or other who are more or less familiar with these facts.

I would like to quote here from Still[16] whom Ibraham—then of Munich—told me he considered the greatest living clinician in pediatrics. "The temperature is often *remarkably little* affected at the beginning of the disease; it may be raised to 100° F. or thereabouts at some time of the day, but after a few days it falls to normal and remains so until the last day or two, when it may become subnormal or run up just before death to 106°—107° F. or even higher". This type is perhaps commoner in England than in our country, as Kerr[17], and again Garrod, Batten and Thursfield[18] speak of the fever as bearing little relation to the severity of the symptoms; and the temperature is subject to most marked variations. Numerous references in our country, too numerous to mention here, do, however, describe the disease as attended by high fever at the onst as a rule. In some instances no other mode of onset is mentioned.

217 Cobb Bldg.

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A GROUP OF CASES OF UNKNOWN ETIOLOGY AND DIAGNOSIS.*

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During the last six years I have had under my care several (ten in all) children who presented symptoms somewhat out of the ordinary, and yet all so much alike that I feel they could be safely called the same condition.

It is a disease characterized by profuse sweating without odor, with swollen red feet and hands that are painfully sensitive to touch. The hands and feet are cold and clammy and the skin of the hands and feet are in a state of desquamation. The body, legs and arms may or may not have a rash. This rash is similar to an erythema—intertrigo, that at times borders on an eczema and itches. Added to the local symtoms there is a progressive loss of weight and marked weakness and apathy that at times approaches stupor.

Most of the cases are of children who are of the runabout age and give a history of having been very active. The patellar reflexes are lost or rather we have been unable to get them. The children have no desire even to sit up and, when taken up to be fed, ask almost immediately to be put back to bed. The heart, lungs and abdomen show nothing unusual.

Two cases have had a mouth condition with profuse drooling, with reddened and swollen gums of the lower jaw which increased in severity rapidly, one of them losing the four lower incisors, the other losing six teeth (the lower incisors and the first molars), as well as a great deal of dead bone and I fear several of the permanent teeth. In each case they lost all the teeth of the lower jaw that were erupted.

The laboratory findings have been practically negative. The blood count has been from 3½ to 4½ million reds, 65 to 85 per cent hemaglobin, differential practically normal, whites from 10 to 15 thousand, urine negative, Wassermann and pirquet negative.

There has been no temperature, frequently subnormal except in cases where they have had the mouth infection which varies from subnormal to normal, occasionally going as high as 101°.

The bowel movements vary. In some cases the digestion has been good, in others the movements are loose with an extremely foul odor.

The picture seems more like a low grade toxemia or a deficiency disease than an infection, yet all of these children were evidently properly fed. They were on a diet suitable for their age, generous supply of cow's milk, vegetables, broths, etc.

On Jan. 19, 1919, a child, age fourteen months, came under my care because he had stopped walking. He had been breast fed for one year but for several months prior to weaning had been given cereals, broths, vegetables and cow's milk. At this time he was in perfect health and had had an uneventful first year, making a satisfactory gain in weight. No difficulty was experienced in taking him from the breast. He continued to thrive until he was thirteen months old.

He had started to walk at twelve months but at thirteen months he did not want to stand up or walk and when he was placed upon his feet would sit down. If forced to stand or walk would cry as if in pain. He began to lose his appetite and consequently his weight.

Physical examination: He was now fourteen months of age and weighed 15 lb. 10 oz. a loss of about 6 lb. in one month. Ht had not vomited and his movements were well digested but had a foul odor. He was very apprehensive about being examined. When one would approach his bed he would begin to cry. It was very evident he was afraid of being hurt. He acted very similar to a child that has scurvy. The arms and legs were not painful to pressure but the hands and feet were markedly so, the slightest touch causing pain. The hands and feet were cold and clammy, swollen, red and pealing. He had over his body, legs and arms a rash very similar to a mild form of eczema which itched intensely. Perspiration was marked, particularly of the face—perspiration would drip from his nose. This was not constant but would appear from time to time during the day. The heart, lungs and abdomen were negative. The mucous membrane of his mouth was slightly reddened and the drooling was somewhat profuse. On this day and during the time the child was under our care it was impossible for us to get the patellar reflexes.

Each day he became more listless and apathetic hands and feet became more painful, the drooling became more marked and mouth symptoms became much worse, the gums became very greatly swollen and inflamed, rendering it difficult for him to eat.

Laboratory findings were negative, movements small, digested but foul.

He had four lower incisors when he came under my care but after a few days I noticed one of the teeth was very loose and after a few days it fell out. A few days later the second and eventually all fell out. This condition was confined altogether to the lower jaw.

If there had been no other symptoms, I would have felt I was dealing with a case of ulcerative stomatitis. The odor of the mouth was foul, the gums were very greatly inflamed, swollen and covered with debris. In fact at this time I felt that the child would not recover, as naturally he could not eat and was greatly prostrated. The mouth condition may have been incidental to the systemic condition. A child with lowered vitality would naturally resist but poorly an infection of the mouth.

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*Read before North Pacific Pediatric Society, Seattle, Wash., Jan. 17, 1920.

During a period of about four weeks, this child was critically ill, then he began slowly to mend. The condition of the mouth began to clear up and, as he recovered, the sweating became less profuse, the rash became fainter but would appear from time to time for a few days. The general condition improved, the hands and feet became less painful. He was allowed to go home after he had been under my care from Jan. 19 until March 22, 1919.

A few days ago, January 1, 1920, I had a report on this child that he is doing well, is well nourished and with the exception of losing his teeth no evidence of the disease has remained.

Lorraine H., born April 19, 1917, came under my care March 22, 1919. Parents were farmers in the southern part of Oregon. At fourteen months was weaned and placed upon a mixed diet with a generous supply of cow's milk. The child had no difficulty with the change of food and did well until twenty months of age.

In Jan. 1919, twenty-one months of age, she began to fret and cry and became wakeful at nights; never had any fever. Mother states child seemed to be in pain, hands and feet were very tender to touch. She lost about four pounds. Her mouth had been sore about six weeks.

Physical examination: Small, undernourished child weighing about 18 lbs. She had previously walked but had not done so now for about two months. She was perspiring profusely, her underclothing was wet from perspiration. She had a rash over her back and shoulders similar to an eczema, she scratched constantly. Her hands and feet were very sensitive to touch, they were red, swollen, tender, and the skin was pealing. The child would not stand up but would cry with pain when placed upon her feet. Her lungs and abdomen were negative. She had a stomatitis, the gums about the teeth being very reddened and inflamed.

This child within a period of a few weeks, lost the four lower incisors, the two first molars and for a long time pieces of the lower jaw were expelled and I fear she also lost several of the permanent teeth. One of the teeth was removed under as sterile precautions as could be made and a culture made that showed a pure culture of staphylococcus aureus. Probably in this case the infection of the mouth was not a part of the disease but an incidental one, a very unfortunate condition, as the child will be seriously handicapped on account of the loss of teeth.

After a number of weeks she began to improve very slowly and now after a year is in fair health, altho she is still underweight.

The laboratory findings were practically negative; 15,000 whites, a little high, which was probably due to the mouth infection; 4 million reds, pirquet negative, urine negative, Wassermann negative. Temperature subnormal and normal, except during the time when the mouth was badly infected.

In this case the bowel movements, seven or eight daily, were fluid, poorly digested, extremely foul, in fact putrid.

Arthur H. born March 11, 1918, came under my care Oct. 10, 1919, when he was nineteen months of age. This child came from Eastern Oregon. The father and mother were both under thirty years, living and well; no other children; negative family history. The child weighed 9 lb. at birth, breast fed for two and a half months, then put on Eagle brand, gained in weight and was evidently in good condition, and at nine months put on cow's milk and general diet.

For the last month has had poor appetite and very restless at night. The child seemed in pain, weight 26 lb. temperature 100.2°.

Physical examination negative except excessive perspiration, a rash over the back, abdomen and buttocks, which itched as he attempted to scratch himself constantly. Hands and feet red, swollen, painful to touch.

This child had formerly been very robust and active. At the present time he did not wish to use his hands or feet but wanted to stay in bed constantly. He presented a very pitiful picture. When taken up to be given his food, he would immediately say "bed" and would much prefer to stay in bed than take food, as the exertion of sitting up in the nurses lap seemed to tire him greatly. As all the other cases he was exceedingly apathetic. Laboratory findings negative. Bowel movements loose and offensive.

After a perod of several weeks he began to improve and was sent home. However, he has not completely recovered, as he has remissions which are not so severe as the first attack, but the pain and discomfort of his hands and feet compel him to remain in bed for several days at a time.

Richard B. was seen March, 1918. Until four years of age nothing unusual in history; had been having the regular mixed diet for a child of this age. He was a lovable, amiable child of a happy disposition.

For no ostensible reason he began to lose weight and could not sleep, became cross and irritable. In fact his grandmother, whom he had formerly greatly loved, could not walk into the room where he was without his going into a rage. Earlier in the disease he would crawl or limp out of the room when she came in. Later, when his symptoms had become more marked when he could not leave the room, she would be compelled to go away before he would become quiet. In fact, he seemed very much like a mental case.

The sweating in this case was not so profuse as in some of the others but the itching was most marked. His hands and feet were red, swollen and extremely painful. In fact, they were exquisitely sensitive. The loss of sleep became a very distressing symptom. His muscles became soft and flabby. The patellar reflexes were absent, he stopped walking and had to be carried. Earlier when he walked he would do so crouched up like a very old man with an unsteady, limping gait. The temperature was practically normal. The laboratory findings were all negative. Bowel movements had an extremely foul odor.

He was sick for one year but finally recovered and seems to be in satisfactory health at the present time.

A description of the other cases would simply be a repetition. What I want to bring out is this, that these children all had practically the same condition. Most of them came from good surroundings from small towns or farms of Oregon; the majority of them were children from one to four years of age who had formerly been healthy and active, who slowly and insidiously became listless and apathetic, losing all desire to play and walk and who wanted to remain in bed. Most of them did not want to sit up even long enough to take food. The three cardinal symptoms were profuse sweating, red, swollen hands and feet that were pealing and exquisitely tender, and pronounced asthenia.

It is a question whether they lose the use of their legs from pain, from exhaustion or from some peripheral nerve infection. There seems to be a loss of the patellar reflexes in all the cases. in the absence of temperature I could hardly consider an infection but did consider a low grade toxemia or a deficiency disease.

There was really nothing about the character of the food the children were taking that would suggest a clue to the trouble. As the movements were offensive I would empty the intestinal tract and give gruel for forty-eight hours, then place the child on a diet high in carbohydrate and low in protein with a fair percentage of fat. The difference in diet would change the character of the movements, as they would become smooth and well digested. I also gave atropin three times daily for the profuse perspiration.

I have had no fatalities but I am not satisfied with the slow progress many of the children made. The treatment has been entirely symptomatic and consequently unsatisfactory.

ROUTINE WASSERMANN.*

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This paper is a plea for the routine Wassermann test to be employed not only in the larger hospitals and by specialists, but by the general profession at large. In taking blood for Wassermann, there are many important features which, if overlooked, may result in the laboratory sending back a negative report, when it should be positive. A specimen which is to be sent any length of distance by mail should be taken in a sterile container and only the serum of the blood should be sent. Most of us boil our syringes, needles and containers before drawing blood, but these should be absolutely dry, otherwise the water in them may hemolize the blood and this produces a negative reaction. It is also well to question the patient closely in regard to his taking any medicine in the last few days, as there are a great many drugs that will also produce a negative Wassermann, as well as the various home made brews so popular at this time. If you will select a good laboratory to do your work, insist on blood examinations, whether the case be medical, surgical or urologic, you will receive some of the surprises of your busy life.

Allow me to report a few cases with symptoms, beginning at the top of the head and ending at the soles of the feet, in patients who came in for other conditions, in which their histories were absolutely negative and all of whom, when confronted with a very positive Wassermann, said, "Why, doctor, how can this be, when I never had any disease, sores or breaking out on my body"? Some of the series to be reported, however, did admit having gonorrhea years ago.

As I promised to start at the top of the head, we will take the fat man who said there was nothing wrong with him except that his hair was falling out in patches, for which he craved relief. The dear old lady with severe headaches was worse at night, and a high blood pressure; her family of grown boys were all in good health, but her husband had recently came in with bladder trouble, which turned out to be an incipient tabes. Another case comes to my mind of a young woman with severe dizziness as her only symptom after all other causes had been ruled out, including a blood Wassermann, the spinal fluid Wassermann telling the true story.

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*Read before Polk-Yamhill-Marion Medical Society, May, 25, 1920.

There are many eye cases, one of which comes to mind, of a young man supposed to be due to alcohol, but which turned out to be markedly syphilitic. Concerning the nose and throat, I have seen several cases lately in perfectly respectable young college grls, one of whom absolutely refused syphilis as the cause of her trouble, and who states that she will see a Christian scientist practitioner, who she knows can promise her something better than two years or more of strenuous treatment.

Only last week the manager of one of the largest firms in my town came to me with a statement that he checked up himself once a year with a blood pressure reading and urinalysis (he had a nervous breakdown a few years ago, with large amounts of indican in his urine at that time). His examination, as far as he was concerned, was perfectly satisfactory, but his aortic area sounded suspicious. Therefore, I sent him to a laboratory for a blood test, and to a prominent internist for a heart examination. The internist reported a moderate sized aneurism, and the laboratory a four plus Wassermann. Yet this patient complained of no symptoms whatsoever. He is the type of the successful business man who drops dead on our streets, and the family doctor signs the death certificate as organic heart disease. Professor Wharton, of Ann Arbor, goes so far as to say that fifty per cent of his autopsis show syphilis of the heart or aorta.

Of the lungs it is estimated that about one case in a hundred diagnosed as pulmonary tuberculosis is syphilitic.

My prize case of syphilis of the liver is that of a business man who for over four years refused to have a blood test but, after trying everything else and losing forty pounds, at last consented. He has regained his forty pounds lost weight.

A farmer with a typical history and findings of ulcer of the stomach and a strongly positive Wassermann test after treatment has evidently been cured of his ulcer. Whether or not this is a specific case, I do not know.

I have seen cases of albuminuria and so-called nephritis with positive Wassermann, who have shown great improvement, but am not prepared to say definitely whether or not there was a true syphilitic infection of the kidney.

Some of the badder cases are undoubtedly incipient tabes. I have one case of gumma of the female urethra under treatment at the present time.

The largest leg ulcer I have seen was one measuring twelve inches in length by eight inches wide, which started as a bruised shin, and is now completely healed.

My cases of bone syphilis have varied from infection of the vertebral column to the ordinary pathologic fractures, which are produced so easily by the patient when simply turning around or stepping down a short incline.

Syphilis of the cerebrospinal system is common, and in mentioning it I must emphasize the importance of a lumbar puncture. After many cases will show an absolutely negative blood test, the report on the spinal fluid wil again surprise you.

I had almost forgotten the palms of the hands and soles of the feet. A prominent man came in one day with a few small vesicles on the soles of the feet. I told him to buy some foot powder and forget it but, as he started out of the office, I could not allow my hobby of obtaining blood tests to go astray. The result was the same old story. He has gained fifteen pounds in weight.

Probably the greatest authority on the pathology of syphilis in America today, if not in the world, is Professor Wharton, of Ann Arbor, for whom I have the greatest respect, and you would too, if you had ever sat as a student under him. He says syphilis is the most important infection affecting the human race; that it is rarely recognized outside of diseases of the skin; but that the great majority of cases occur in the field of internal medicine; that patients do not die of syphilis, but of its affect on the cardiovascular system. The modern treatment of syphilis used in France for the A. E. F., I have described in the April issue of *Northwest Medicine.*

In closing, I cannot refrain from quoting from Sir William Osler: "Know Syphilis in all its manifestations and relations and all other things clinical will be added unto you."

SALVARSAN-MERCURY INTRAVENOUSLY.

(A preliminary report).

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The war over we began getting German periodicals and thus renewed our previously quite intimate knowledge of their doings along the medical lines. Among other and quite important contributions of the war times was an attempt of Dr. Linser to resurrect the intravenous administration of mercury in syphilis. The results, as published by him in No. 41, 1919, of the *Munchener Medicinische Wochenschrift,* were extremely gratifying, so much so that others took it up and applied it with likewise encouraging results. In No. 15, 1920, of the *Munch. Med. Woch.* Dr. Carl Bruck, well known to every syphilologist and serologist in Germany and abroad, published his results of intravenous salvarsan-mercury therapy. His series comprised 24 cases with sum total of 174 injections.

Encouraged by those articles and also by private letters of two of my medical friends in Vienna, I introduced the treatment in my cases. Ten cases were treated, sum total of injections being 122. Seven of them were secondary, three tertiary cases. All of them were symptomatically and serologically positive.

The technic used was the one recommended by Linser and an extremely simple one. A 10 cc. syringe and two needles are used. According to the height, weight and the condition of the patient, a suitable dose of neosalvarsan (Metz in my cases) is dissolved in 8 cc. of water and drawn into the syringe. The other needle is introduced into the vein in the usual fashion and a sample of blood is obtained for Wassermann. (I propped the tube in such a way that while blood is running I can mix my salvarsan with mercury. No assistance is needed). Two cubic centimeters of a 1 per cent watery solution of $Hg\ Cl^2$ are now drawn into the syringe containing neosalvarsan. A little air bubble is then drawn in and the syringe inverted a few times up and down. The air, which facilitates the mixing, is now expelled, turniquet taken off, and the syringe connected with the needle in the vein.

Before the injection is completed the patients complain of a peculiar taste in the mouth. After a few injections some of them complain of the same taste every morning. No case of gingivitis developed in my series, extremely good care having been taken of teeth in every one of my cases. Dr. Bruck reports one case of gingivitis. Neither he nor Dr. Linser had any other untoward results. In my series of 122 injections no reactions occurred except some slight nausea and vomiting in a few instances, patients having taken injections at the close of a hard working day with two heavy meals. There has never been any local reaction in the vein, no exanthemata, diarrheas, stomatis or albuminuria.

Injections were given every five days, a total of six, or more often eight injections to a series. Enough injections are given to make the blood negative to Wassermann, and then three more injections. After that follows an interval of six weeks without any treatment whatsoever, and then the Wassermann is repeated. If negative, it is repeated at monthly intervals; if positive, another series of treatments is begun.

The symptoms clear promptly with two or three injections and the serum reaction becomes permanently negative with one or two series. I have made a Wassermann test after each injection. One of the cases, a tertiary one with cerebral symptoms, has been previously treated with pot. iodide, salvarsan and some mercury by mouth and the serum reaction turned gradually under that treatment from 100 per cent to 25 per cent positive. At that point patient was given combined salvarsan-mercury intravenously and Wassermann jumped up again to 75 per cent positive (a regular "provocative reaction"), contrary to what one would expect as the result of mercury on Wassermann. Afer a few combined injections the reaction became *gradually* negative again with great improvement both subjectively and objectively.

It would seem that the prompt serologic improvement is due not to the masking effect of mercury on Wassermann reaction, but to a real, progressive improvement of patient's condition. It remains to be seen if those serologic results are temporary or lasting. The experiments have not been carried for a period of time long enough to arrive at a definite conclusion as to that point.

What has been proven, however, is this:

1. Mercury can and should be given intravenously, that mode of administration being *perfectly painless and safe.*
2. *The results are prompt,* both from symptomatic and serologic point of view.
3. *Patient is saved time, money,* and his period of mental anguish is decidedly shortened.

I wish to thank Dr. James F. Bell for his kind help and Dr. Dinsmore, of Hillboro, for cooperation and one of the most interesting and instructive cases.

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EDITORIAL

THE PSYCHIC FACTOR IN ANESTHETICS.

From time to time it seems the part of wisdom to call the attention of surgeons to the effects of surroundings for good or bad on patients who are about to take anesthetics. In connection with hyperthyroidism Crile has given us much help in this direction. Many hospitals continue to ignore the evil effects of faulty arrangements in and about anesthetic rooms and some harm is no doubt done to patients thru such oversights. A recent somewhat neurotic woman, who submitted to a minor surgical operation, commented upon the unpleasant surroundings she passed thru prior to her operation and told in substance the following story which, tho possibly slightly exaggerated, was undoubtedly correct in its major details.

She was placed on a wheel stretcher and taken into a long corridor, on both sides of which were small rooms containing people who were reaching for things in various directions. Her stretcher was moved several times to permit others to pass. While waiting her turn, she saw other persons take anesthetics, some of whom were "screeching." After considerable delay she was wheeled into a small unventilated room, where she remained for fifteen or twenty minutes until someone, evidently not connected with her case, moved her on her request to another room. Here all was quiet for a few moments until she heard a curious noise. She looked around and saw a man grinding surgical knives, the room where this occurred being the instrument room. This of course had a pleasing effect on her. While waiting she counted five or six other patients on other stretchers being passed to and fro. Nurses and others talked constantly about operations. Doors swung open, permitting people to go in and out, some of them bandaged and silent, others restless and moaning. Another stretcher was wheeled in and placed alongside the one she was on. She turned and found a woman with her face and head heavily bandaged. It seemed as if her surroundings were those of a slaughter-house. A blond girl came in, bringing some straps and a can of ether. Another girl entered and the two engaged in conversation, from which it became apparent that the one who was to give her the anesthetic had had little experience, altho the other nurse said she had given over one thousand anesthetics. Before proceeding with the anesthetic a strap was placed around her body and she was fastened to the table and more conversation followed.

One and one-half hours elapsed after she was brought from her room before the anesthetic was administered, and thruout this time the thought that she was in a chamber of horrors constantly filled her mind. That she might not seem to have exaggerated and to explain the long and certainly unusual delay, it was afterwards ascertained that her surgeon had sent for her but had been called upon unexpectedly to do some other work and had forgotten to order her sent back to her room. She made an uninterrupted recovery but it is quite likely that never again will she submit to surgical interference, for the experience has left a lasting impression upon her mind.

When will hospitals arrange anesthetic rooms in such a way as to minimize shock to the patients? The writer is of the opinion that, whenever feasible, anesthetics should be given in the patient's own room, after which the necessary removal may take place. Or, if this is undesirable from a surgical standpoint, it certainly seems as if every effort should be made to minimize the terrors of unpleasant surroundings for those who are about to go into what, from their point of view, is often "the valley of the shadow of death."

STATE AND PROVINCIAL SECTIONS OF THE CLINICAL CONGRESS OF THE AMERICAN COLLEGE OF SURGEONS.

The annual Clinical Congress of the American College of Surgeons has grown to almost unmanageable proportions, while only a comparatively small percentage of the membership can participate on account of long distances to be traveled. It is on this account that those who are directing the destinies of the College have decided upon sectional meetings, to extend the educational facilities of the College to such an extent that every member and prospective member can have the opportunity to benefit from these meetings. The honor of carrying out in practice this pioneer work was given to the northwestern states, the first being the Montana section of the Clinical Congress of the American College of Surgeons, held at Butte, Montana, followed immediately by the Idaho section at Boise, the Oregon section at Portland, and the Washington section at Seattle.

In addition to the clinics, thru which the Fellows of the College learn of each other's work, there is another very important feature of these meetings, and that is the contact with the general public. While the clinics are given by local talent, there are scientific addresses given by men of eminence in the profession, and the public meetings are also addressed by these eminent surgeons, as well as by laymen. For these first meetings, Dr. Franklin H. Martin, founder of the College, Dr. Frederick Besley, Professor of Surgery at Northwestern University, Dr. William D. Haggard, Professor of Surgery at Vanderbilt University and Mr. John G. Bowman, Director of the College of Surgeons, make a very formidable team for the presentation both of scientific papers and public addresses.

It was not many years ago that many of the profession were very pessimistic about doing away with the disgraceful practice of fee splitting. The American College of Surgeons in its very beginning worked with positive determination to stamp out this illegitimate practice. It was uphill work until the hospitals began to be standardized and placed on a plan which would not allow the fee splitter its privileges. This work of hospital standardization has been brought about by an immense expenditure of time and money by the American College of Surgeons, and while the work is only in its infancy, beneficial results are already very evident. Direct contact with the public is obtained in these sectional meetings thruout the American continent, and cannot help but stir the public to its own responsibilities. The layman will not be slow to learn the importance of patronizing hospitals which keep proper case records, and have proper laboratory facilities, and who have a competent and honorable coterie of attending physicians. By this splendid work of the College and the publicity that goes with it, the fee splitter is becoming a moderately rare animal, and apparently will soon be an extinct species.

The question of good hospitals and honorable practice among the profession, however, are not the only objects of getting in touch with the public.For the great general problems of public welfare as they relate to surgery are brought out at these meetings. For instance, when the public learns from one of these noted scientific men that typhoid fever, which in the past has practically destroyed armies, was a negligible factor in the world war on account of the efficiency of vaccination, they begin to realize the value of the medical profession to the community. The public is also warned of the necessity of cooperating with the surgeon in order to try to stamp out the great scourge of cancer. These eminent men who brought their message to the northwest went away apparently well satisfied with the work done in these four states of the great northwest, and there is no doubt but that the community is immensely better off in consequence of their visit. When we think of the splendid seed that has been sown in these four meetings, and realize that it is to be repeated in every one of the forty-eight states of this union, as well as in all the provinces of Canada, we can realize the tremendous and spreading influence of the American College of Surgeons. And in all this the hand writing on the wall is very plain, that there is coming very soon a much better day for American surgery, which of course redounds to the benefit of both the surgical profession and the community.

THE TACOMA MEETING.

The meeting of the Washington State Medical Association at Tacoma last month was gratifying for several reasons. The attendance far surpassed the expectations. While it was anticipated that about two hundred visitors might be present, the number was nearly double that figure, which served to make every session largely attended and full of interest. The other pleasing feature was the ready response in the way of discussion of the papers which were read. In fact, the time was not sufficient in several cases to permit all to speak on some papers who desired to express themselves. The papers were few in number but on live topics, as was indicated by the ready response in debate. There was a good representation from Portland which is always gratifying at a Washington meeting, as anything that will serve to bring the profession of the two states into closer relations should be fostered for the wellfare of all concerned.

Since the meeting covered but two days, the hours were full of interest and something was doing continuously. Wide-spread interest was displayed at the session, at which the Washington League for the Conservation of Public Health was explained, and every one urged to join in order that the well-fare of the citizens of the state and the interests of the medical profession may be equally fostered and advanced. The chief social feature of the gathering was the dinner at the Country Club on the evening of the first day. The hosts were overwhelmed by the unexpected attendance, but patience and good nature served to accommodate every one in a pleasing and satisfactory manner. It was agreed by all in attendance that the meeting was well worth while and it will be held in happy recollection by all present.

NEW ADVERTISEMENTS.

Attention is called to our advertisement (page 25) of The Engeln Radiographic and Fluoroscope Unit, of Portland, which offers electric apparatus of high grade for office use. The National Medico-Service (page 13) is prepared to furnish accurate lists of all physicians in the Northwest for mailing purposes. The Marshalltown Laboratories (page 7) presents further information in a page advertisement regarding the merits of Cellosilk.

MEDICAL NOTES

OREGON.

The Oregon Section of the American College of Surgeons held a two day session at Portland last month. The clinics were held in the hospitals for the benefit of the Oregon members of the College, which were largely attended. Surgeons from the east delivered addresses for the purpose of enlightening the public on the progress of medicine and efforts to raise the standards of the medical profession. Dr. Andrew C. Smith was elected chairman for the ensuing year with Dr. J. A. Pettit, Secretary, and Dr. E. F. Tucker, Counsellor, who will constitute a council to manage the affairs of the College.

Favors Choice of Physician. A committee appointed to draft a proposed amendment to the Industrial Compensation Act will present a plan before the next session of the legislature, permitting an injured employee the privilege of choosing his physician or surgeon. A method will be devised by which such a right will be given the employee.

The Polk-Yamhill-Marion Medical Society at its meeting several months ago elected the following officers for the ensuing year: Pres. C. A. Downs, Salem; Sec. H. J. Clemments, Salem.

WASHINGTON.

Licentiates by Examination. At the examination for license to practtise in Washington, held at Spokane in July, the following thirteen were sucessful:

L. E. Brisce, Seattle
K. C. Brown, Seattle
L. L. Bull, Ellensburg
M. W. Conway, Escalon, Calif.
Kay England, Yakima
V. K. Hancock, Seattle
Kankichi Saiki, Seattle
M. C. Lile, Seattle
G. W. Roberts, Britania Beach, B. C.
H. H. Sechwartz, K. C. Mo.
R. F. E. Stier, Spokane
C. E. M. Twohy, Seattle
R. L. Zech, Seattle

Licensed by Reciprocity. The revised Medical Practice Act, passed at the last legislative session, provided for reciprocity which the examining board has extended to many states. At the July session of the board fifty license were issued to the following:

C. B. Alpin, Delphas, Kn.
R. D. Alton, Livingston, Mont.
F. L. Ankrum, Seattle
G. N. Anderson, Spokane
C. H. Aylen, Tacoma
H. Amanda Johnson, White Salmon
A. Barclay, Couer d' Alene, Ida.
O. O. Benson, Spokane
Emma J. Brady, Puget Sound Navy Yard
V. V. Bacon, Spokane
Olaf Bentzen, Seattle
John Coburn, Seattle
C. S.Cope, Tacoma
W. H. Calhoun, Chicago
G. H. Coffin, Drake, N. D.
W. P. Dana, Tacoma
G. P. Doyle, Seattle
M. A. Dorland, Anaconda, Mont.
E. D. Geer, Seattle
H. M. Goodyear, Cincinnati, Ohio.
W. G. Gabie, Seattle
R. L. Glase, Seattle
F. T. Harris, Lewiston, Idaho
E. Holtz, Hill City, S. D.
R. F. Hain, Seattle
C. L. Hawk, Seattle
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Christn Johnson, Everett
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H. V. Magnusson, North Branch, Minn
A. A. Metcalf, Yakima
P. D. Moore, Sequim
Albert Morefield, Oak Pt.
R. W. McKinley, Sumas
E. D. O'Neil, White Fish, Mont.
E. F. Price, Tacoma
F. L. Quigley, Wallace, Idaho
L. F. Ross, Richm'd, Ind.
Frances B. Ripley, Bell.
M. R. Satche, Jackson, Minn.
F. L. Secoy, Everett
R. J. Sprowl, Spokane
J. W. Straight, Seattle
A. M. Shafer, Raymond
R. E. Stoble, Maeta Bend, Mo.
Karl Vehe, Cheney
S. C. Way, Denver, Colo.
M. D. Westley, Cooperstown, N. D.

The Medical Contract Question. Much time at the Tacoma meeting was devoted by the House of Delegates to the contract question which was referred to it by the Spokane County Society. The resolution to expel from the society all members holding contracts was to become effective this month. After a long discussion and the presentation of much fervid oratory, the House voted by a large majority its disapproval of this action of the Spokane society, which was equivalent to preventing the execution of this resoultion. It was stated that the society would appeal from this decision to the American Medical Association.

Large Hospital in Contemplation. It was reported last month that the General Conference of the Methodist Church was planning to erect a new Seattle General Hospital. The new location and date of construction have not yet been determined. It was said that the new hospital will cost $1,000,000 and will contain at least three hundred beds, with the latest equipment and furnishings. The city is very much in need of such increased hospital facilities.

Money to be Raised for Hospital. A campaign is to be inaugurated at Everett to raise $150,000 to convert the Columbia College building into a hospital which will accomodate about one hundred beds. The college building with about ten acres of land has been donated for this purpose by the United Norwegian Lutheran Church of America. This concrete structure was opened as a college in 1905 and closed in 1919. Only interior alterations are necessary to convert it into a modern hospital building.

Hospital to be Enlarged. Last month a campaign was carried on in Spokane for raising $300,000 dollars for a large addition of St. Luke's Hospital. The contract has been let for the construction of a wing which will add about one hundred fifty beds to the present capacity. It will be four stories in height, of the most modern construction and all of the necessary equipment for an up-to-date hospital.

Hospital Cornerstone Laid. In August the cornerstone of the new Lady of Lourdes Hospital was laid in Pasco. The institution is being built by the Sisters of St. Joseph. The hospital has existed for four years in an inadequate temporary building. At present a wing of the main building is being constructed at a cost of $150,000. It is said to fill a long felt want in that part of the state.

The North Pacific Pediatric Society held its semiannual meeting in Tacoma last month in conjunction with the State Medical Association. An interesting program of papers was read. Dr. Isaac A Abt, of the Northwestern University Medical School, was the guest of the society. Officers for the ensuing year were elected as follows: Pres., J. B. Manning, Seattle; Vice-Pres., C. U. Moore, Portland; Sec'y.-Treas., J. I. Durand, Seattle.

The Washington Section of the American College of Surgeons held a three day session in Seattle last month. Clinics were held in the hospitals and largely attended by members of the college of different parts of the state. Later the usual public meetings were held to which the laity were invited. Dr. Bowman, Director of the College, stated that Seattle leads the country in the work of standardizing hospitals and in the improvement of medical and hospital conditions. The 1921 meeting will be held in Spokane. Dr. Eikenbary, of that city, was elected chairman for the ensuing year.

Killed in Aeroplane. Last month the wife of Dr. L. A. Scace, of Centralia, died as the result of injuries received in an aeroplane flight. Owing to the presence of a fogbank, the airship in which she was a passenger ran into the top of tree, causing the plane to drop one hundred-fifty feet with this fatal result.

Typhoid Epidemic. Last month about fifteen cases of typhoid were reported in Spokane, the majority of which were contracted at a Loon lake cottage camp. Several cases in other cities have been traced to the same source. A particular well is supposed to have originated all of the cases.

Doctors' Offices Robbed. Last month a sneak thief ransacked the offices of a number of physicians and dentists in the Cobb Building, in Seattle. All sorts of office plunder was removed which might be pawned for the needed drugs, of which the thief was supposed to be the victim.

IDAHO.

The Idaho Section of the American College of Surgeons held its clinical congress early last month at Boise, largely attended by the members from the state. The meeting next year will be held in Pocatello. The officers are as follows: E. E. Maxey of Boise, Chairman; W. F. Howard, Pocatello, Sec'y; C. M. Cline, Boise, third member of the committee.

Increase of Fees. At a recent meeting of the Canon County and Shoshone County Medical Societies resolutions were adopted increasing medical fees. A minimum schedule was announced and this action was published in the daily press for the benefit of the public.

County Nurse Chosen. At a recent meeting of the County health committees at Sandpoint, action was taken favoring the employment of a county nurse. Numerous speakers emphasized the necessity of such an appointment and showed the results that might be anticipated.

Dr. C. H. Coulthard, of Ilo, has left the city and moved to southern California.

Obituaries.

Dr. W. H. Stutsman, of Seattle, died Sept. 22 after a three days illness from septic meningitis, resulting from streptoccocic infection in the nose. He was 35 years of age, born in Hymera, Ind. He graduated from Rush Medical School, Chicago, and served for two years as intern in the Presbyterian Hospital. He was in army service for two years, being captain in the medical corps. For the past year he practised in Seattle, where he made many friends and established himself as a physician of unusual capabilities and promise.

Dr. A. R. Anderson, of Parma, Ida., died from pneumonia at Ontario, Ore., August 24. He was 30 years of age and spent his boyhood in the Payette valley. He took a premedic course at the University of Idaho, later graduating from the University of Minnesota. He served as an intern at St. Mary's Hospital, of Duluth, and for a time was pathologist of St. Andrew's Hospital, Minneapolis. During the war he was stationed at St. Elizabeth's Hospital, in Washington, D. C. He took a postgraduate course at Harvard and early in this year settled for practice in Ontario.

Dr. W. P. Morgan died at Rolling Bay, Wash., Sept. 20. aged 74 years. He was born near Cardiff, Wales. In his youth he was an apprentice in surgery and medicine to Dr. Davies, in his native village, in 1861. His certificate, among other things, stipulated that he should not haunt taverns or playhouses. He served for a time in the British army in India. After coming to the U. S. he lived a few years in Missouri, and came to Seattle forty-three years ago. He was well known in all of Kitsap County which he covered many times on horseback. He lived alone for thirty years or more.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

The Oxford Medicine. By Various Authors. Edited By Henry A. Christian, A. M. M. D. Hersey Professor of Theory and Practice, Harvard University and Physician-in-chief to the Peter Bent Brigham Hospital, Boston, Mass. and Sir James Mackensie, M. D., F. R. C. P., LL. D., F. R. S. Consulting Physician, London Hospital, etc. In Five Volumes. Illustrated Vol. 1. THE FUNDAMENTAL SCIENCES AND GENERAL TOPICS. 923 pp. 8½ x 10½ inches. The Set $52.50. Oxford University Press, London and 35 West 32d St., New York, 1920.

We had occasion last February to comment on advanced pages of this notable work. It represents the highest professional authority and literary excellence. It is the first loose leaf reference work in this field of medicine, the idea being to supply quarterly or revised leaves for insertion in the text to replace the older matter. It is expected that in the course of four or five years the original articles will be largely replaced. In this volume may be found articles by such high authorities as MacKensie, Christian, Billings, Peabody, Barker, Osler, James, Cabot, and Rowntree with many others. The eminence of the editors and contributors, with the high reputation of the Oxford University Press for almost five centuries, render the success of the work certain. The objection to the older systems of medicine is now overcome by the promised continual growth of the present work with the advance of medicine. One is buying a growing and progressing book and not one which is dead at its birth—as has hitherto been the case.

In this volume there is the most complete monograph upon focal infection by the man (Billings) who has done more to popularize it in practice than any other. Since Lister's revolution in surgery there has been no other advance in medicine which has saved as many lives and prevented as much sickness as Rosenow's discovery, developed and put into clinical use by Billings. Osler's article on treatment is characeristic of his wise and logical mind. He says his therapeutics at Baltimore was characterized by a friend as consisting of a mixture of nux vomica and hope. One might say the sweet and the bitter, but Osler points out the necessity of knowing all about a few drugs and the less the better about the majority, and affirms gaining the faith of the patient is the chief thing and this is responsible for the invaluable hope. There are splendid articles by Gay on the mechanism of resistance to disease, in which immunity and antibodies are discussed in the simplest terms but in accord with the latest ideas; on radiations and their effects by Bowie; on acidosis, by Henderson; on calorimetric methods of study, by Du Bois; on environment, by James; and on hydrotherapy, by Hinsdale; besides many more—but this much to give some idea of the scope of this volume. It is an innovation which should receive the support of the whole profession. The work is superlatively authoritive, scholarly, and scientifically up-to-date, and the make-up of the book excellent, the lose leaf binding not being noticeable.

WINSLOW

Plastic Surgery of the Face. Based on Selected Cases of War Injuries of the Face Including Burns, with Original Illustrations. By H. D. Gillies C. B. E., F. R. C. S., Major R. A. M. C. Surgical Specialist to the Queen's Hospital, Sidcup, etc. With Chapter on the Prosthetic Problems of Plastic Surgery By Capt. W. Kelsey Fry, M. G., R. A. M. C. Senior Dental Surgeon, Queen's Hospital, Sidcup, etc. 408 pp. Price, $15. Oxford University Press, London and New York, 1920.

No circumstance but the war could have produced such opportunities as have made it possible for the author of this work to develop the whole subject of plastic surgery of the face. The tremendous amount of material, including such terrible wounds as only war could produce, has enabled Dr. Gillies and his coworkers from the British Colonies and the United States to apply the old principles of plastic surgery and discover new methods of their application. This present book, containing over four hundred extra large pages, is prousely illustrated with photographs and diagrams. Almost every conveivable injury of scalp, eyes, nose, mouth, cheek and jaws is here described and pictured. The text is concise but complete and the subject is handled in eight chapters. Plastic surgery in the hands of men like Dr. Gillies has a new meaning for us, and the results obtained by him can only be described as wonderful. Certainly it seems that no surgeon should attempt this class of work without being familiar with his book.

FORBES.

Handbook of Diseases of the Rectum. By Louis J. Hirschman, M. D. F. A. C. S. Vice-Chairman, Section on Gastroenterology and Proctology, A. M. A. etc. 378 pp. with 223 Illustrations, mostly original, and Four Colored Plates. Third Edition Revised and Rewritten. Price, $5.00 C. V. Mosby Co., St. Louis, 1920.

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This beautifully illustrated manual shows, by the publication of its third edition in a period of a dozen years, how popular the work has been with the profession. It is undoubtedly the best book published for the physician who wants a short, plain, concise volume on the diagnosis and office treatment of rectal disease. It goes fully into the use of anesthesia in the treatment of hemorrhoids, fistula, etc., including a valuable chapter on the contraindications to the performing of rectal surgical operations under local anesthesia.

The author is extremely partial to the use of quinine and urea hydrochloride and discusses the use of this agent at some length. He has had a large experience with it in his work. He uses it usually in a ½ per cent solution for infiltration of subcutaneous tissues and in all tissues to be excised. For skin anesthesia he places apothesine first in his list of local anesthetics. We believe that the majority of those who were compelled to use aposthesine during the war period have been glad to get back to the use of novocain. The physician who is interested in this line of work, and has one of the previous editions, will find sufficient new matter in the third edition to justify its purchase.

CROOKALL

Diagnostic Methods. Chemical, Bacteriological and Microscopical. A Text-book for Students and Practitioners. By Ralph W. Webster, M. D. Ph. D. Assistant Professor of Pharmacological Therapeutics and Instructor in Medicine in Rush Medical College, etc. Sixth Edition Revised and Enlarged, with 37 Colored Plates and 170 other Illustrations. 844 pp. Blakiston's Son & Co., Philadelphia, 1920.

In this work the author has attained the happy combination of the technical with the practical. To the reader this combination is especially pleasing, since technical portions are limited to that necessary to clarify the practical work which immediately follows, thus making the mental absorption both an easy and pleasant task. The field of discussion is very completely and thoroly covered. Where different methods are given the failings and virtues of each are portrayed, and the reader's attention is especially directed to that method which best meets the requirements of clinical work. Two features run thruout the entire work, the author's knowledge and experience in chemistry and practicability. Plainly the author realizes that a precedure scientifically exact may not be at all practical and, on the other hand, a practical procedure may be clincally exact, tho not technically so. The author's style is clear and terse, the illustration excellent and the bibliography complete. It is a most excellent work.

WEST.

An Epitome of Hydrotherapy for Physicians Architects and Nurses. By Simon Baruch, M. D., LL. D., Consulting Physician to Knickerbocker and Montefior Hospitals, Consulting Hydrotherapeutist to Bellevue Hospital, New York City, Formerly Professor of Hydrotherapy, College of Physicians and Surgeons, Columbia University. 12mo of 205 pages, illustrated, Philadelphia and London: 1920. W. B. Saunders Company, Cloth, $2.00 net.

Baruch is the father of hydrotherapy in this country. His first work on the subject was published twenty-eight years ago and since that time he has been *the* authority on the subject. The first part of this condensed treatise on hydrotherapy is devoted to technic in its many and various forms and includes the paraphernalia needed for the complete installation of apparatus suitable for institutions. In the latter part of the book may be found the correct methods for applying hydrotherapy in certain diseases, as typhoid fever, sunstroke, pneumonia, influenza, tuberculosis, rheumatism, neurasthenia and neuritis.

For the proper application of hydrotherapy the rationale and physiology of its effects must be clearly understood and ignorance of these is the common cause of failure. Baruch gives a clear exposition of these matters in several chapters. As the use of hydrotherapy is often a life-saving measure and on the whole is usually as valuable, and often more valuable, than drugs, it behooves the practitioner to devote the time to master its indications and uses. The reviewer has for the past twenty years been particularly interested in Baruch's writings on the subject and regards them as very practical and valuable. In influenza the toning up of the vasomotor system and heart may be accomplished most successfully by Baruch's procedures. The book should prove of great worth to nurses who try out most of the methods in the acutely sick. Altogether a most desirable treatise and easily digested on account of its brevity.

WINSLOW.

Human Parasitology with notes on Bacteriology, Mycology, Laboratory Diagnosis, Hematology and Serology. By Damaso Rivas, M. D., Ph. D., Assistant Professor of Parasitology and Assistant Director of the course in Tropical Medicine, University of Pennsylvania, Octavo Volume of 715 pages with 422 illustrations and 18 plates most of which in colors. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, $8.00 net.

This work is very comprehensive and very thoro. Its field extends from flagellata normal to the human intestines, to filterable viruses of plants. This wide scope and completeness of detail makes the work rather cumbersome for hasty use. The illustrations are excellent and include tissue changes produced by various parasites, as well as a schematic portrayal of the life cycles of such parasites as are understood. For reference work this book is excellent.

WEST.

NORTHWEST MEDICINE

The Journal of the State Medical Associations of Oregon, Washington, Idaho and Utah
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ADDRESS

SOCIALIZED MEDICINE.*

S. W. Mowers, M. D.
SEATTLE, WASH.

I wish to express to you my thanks and appreciation for having conferred upon me the honor of being your President during this year. This is an honorable association which has at all times conducted itself in a manner that would honor the profession to which its members have devoted their lives. With the growth of the state there has been a corresponding growth of the profession, whose members not only have treated the sick but have done all in their power to care for and promote the health and well being of the public.

Those of us who have lived here for any length of time can remember localities that have been devastated with typhoid, where year after year scores and hundreds were ill with that disease, under the most favorable circumstances a source of great economic loss to their communities, with a possible loss by death of the providing member of the family. Those same localities today are free from any diseases of this type and this change is due to the teachings and constant efforts of the members of our profession. We have cared for the health of our communities regardless of remuneration and even at a cost to ourselves both physical and financial. We have no large pauper element, but either in county or city hospitals in the larger communities, or by the individual physician in the smaller, all needy have been cared for. In the time of war our association furnished very many of its best members, whose work and skill redounded to our great credit and who have now returned to again take up their work as civilians, and carry on in the same quiet and creditable manner, in which they lived before the war.

Our Association roster shows a membership of 905, out of a total of 1725 practicing medicine and surgery in this state—not so large a proportion as there should be but a very creditable showing. While the Association is not formed with any financial object, still the secretary's reports make a very creditable showing, there now being in the treasury nearly $3000.

In 1913 there was organized the Washington Defence Fund, a society conducted by the Association to defend its members in any case where a malpractice suit has been brought. Since its organization it has defended 197 cases without the loss of a single one. It, too, is in a splendid financial condition, with a balance of over $6300 in its treasury.

I feel that we, as the members of the Association, spend too little thought on the praiseworthy things we are doing, and on the standing and influence we have with the general public. We are their advisors and counselors in the most private affairs of their lives and see them and console with them in the most critical and heart breaking moments. We should, if we so wish, have more influence with them than any other body of men, but we are inclined to belittle our influence because, thru our negligence, we have allowed ourself to be associated in the public mind with the many "pathies", "antis" and "scientists", and because of this we have lost, to some degree, this influence which should be ours.

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*President's address read before the Thirty-First Annual Meeting of Washington State Medical Association, Tacoma, Wash., Sept. 16-17,1920.

I am saying these things because they are true and because it becomes us all at some time in our lives to take a candid inventory of our good and our ill points. We are not all good. We all realize that it is necessary for us to do some house cleaning. We permit things to happen in our profession which meet our own disapproval. When the attorney sees some member of his profession acting in an unseemly or unprofessional way, the bar association often takes matters in its own hands and has the offending member disbarred. We see things done in all of our hospitals which ought not to be done, but no action is taken by the Association. We are having a great deal of needed improvements done along the line of hospital standardization, but are doing nothing along the line of medical standardization. It is imperative that we clean our own house, because the practice of medicine is no longer a mystical matter to the general public and they will take the matter into their own hands and will make many very unwelcome changes.

It behooves us to act together. We are now confronted with the most critical condition which our profession has ever faced and we must meet it with the utmost cooperation, coordination and unity of purpose. All of our small family disputes must be submerged into a united family front, fighting not so much for ourselves but for those ideals for which our profession has always stood—for the betterment of the health and welfare of the public, realizing that, by accomplishing this, we will be improving ourselves and elevating the standard of medical care and treatment. I refer to the so-called social medicine, which in various forms is at present being considered by a number of our state legislatures and which has been passed by some and has been rejected in California by a referendum vote.

What is social medicine or compulsory health insurance, as it is technically called? Perhaps this is best answered by quoting the memorandum on the bill introduced in the New York Senate, in 1917. "An act to establish a system of compulsory insurance, to furnish benefits for employees in case of death, sickness and accident, not covered by workmen's compensation, and for the dependents in case of sickness and accident and to furnish maternity benefits, and to provide for contributions by employers, employees and the state and to create the health insurance commission". The limits of this address will of necessity prevent me from doing anything more than touch on a few of the features of this act but in our discussions I want to emphasize the fact that this is an economic proposition and its effect on the physician is only of secondary importance to the public. If they consider that they will be benefitted by an act of this type, they will be influenced not at all by its effect on the medical profession. The only way the public will be influenced will be by the belief that such an act will lessen the incentives and will lower the standards of the profession and as a result the medical and surgical benefits will be of a much lower standard than what they now receive.

A bill of this type was first introduced into Germany in 1883, presumably by Bismarck, at that time Chancellor of the German Empire. Since then it has been adopted with some changes and amendments by a number of the other European countries. In 1910 Lloyd George prepared his bill and, strange as it may seem, while he consulted almost every other organization in the Empire and the individual employer and the various benevolent societies, he never consulted the physicans and they were not heard till after the second reading of this bill. This was possibly due to the fact that the English physicians have held aloof from the general public and have never had anything to do with framing of health bills. We have been too much like them and from this time should not allow ourselves to be caught in the same predicament. Their protests were unavailing, possibly due to the fact that they opposed the bill on financial grounds, considering largely the compensation between doctor and patient. The bill was passed and is now a law in Great Britain.

In this country the bill was taken up by the American Association for Labor Legislation, which is a voluntary association wth a large membership in each state. By 1917 the bill had been introduced into fifteen legislatures. In practically all of these states the commissions reported favorably on the bill. In California, while two commissions reported favorably, on a referendum vote it was defeated almost three to one.

To summarize the various bills, I quote from a recent article appearing in the Journal of the American Medical Association by Dr. F. R. Green, Secretary Council of Health and Public Instruction, American Medical Association. "It provides that all employees earning less than a given amount shall be entitled to medical, surgical, hospital and nursing care, dental treatment, maternity benefits, cash benefits and funeral allowances. These services are to be paid for out of a fund, of which the state furnishes one-fifth. Two-fifths are to be contributed by the employee in the form of compulsory payments of a certain percentage of his wages, variously estimated at from 3 to 7.5 per cent, and the remaining two-fifths are contributed by the employer in the form of compulsory payments of about the same percentage of his payroll. This fund is to be administered by a local board for each group of 5,000 employees, to be composed of an equal number of representatives of employers and employees, all the local boards to be under a state commission which will determine the conditions of medical treatment, terms of compensation to physicians, etc.

"Regarding the details which vary in different bills, but which do not change the principles involved, the maximum annual income as fixed by the British law was approximately $800 a year. That is, only employed persons whose gross annual income was $800 or less came under the compulsory provisions of the law. This has since been raised to $1,200. In the model bill drafted by the American Association for Labor Legislation, the maximum amount is $100 a month. In the Donohue-Davenport bill in New York, no limit was specified. The proportionate amounts to be contributed by the three parties also vary in different bills. The amount contributed by each employee is fixed by a sliding scale, in accordance with which the amount contributed by the employee decreased and that contributed by the employer increased as the weekly earnings decreased in amount. Employees receiving less than $5.00 a week pay nothing, the employer paying 80 per cent and the state 20 per cent. Details regarding medical services also differ. Medical and surgical attendance is provided either by the appointment of certain physicians as whole time insurance physicians, or by the creation of a panel or list of physicians in each district willing to care for those insured. Proposals for the compensation of physicians also differ. The payment to each physician of a fixed salary, an annual pro rata division among all the physicians on the panel of the amount appropriated for medical and surgical services for the district or a capitation system, by which each physician is paid in accordance with the number of persons treated or the amount of work done during the year, are among the plans proposed."

In the investigations of the various commissions it has been impossible for them to obtain any complete data of the time loss from illness or the amount of illness or even the death-rate from various causes, the investigations usually covering small areas. Yet from a few isolated investigations conclusions are drawn as if they were necessarily proven. The objects of the bill are two, to reduce the time lost by workmen thru sickness and to divide the expenses between the employee, the employer and the state.

You will notice that the needed relief does not appear to be given to those who need it most. The bill applies only to those who are earning $1200. per year or less and only includes a certain definite number of occupations. Persons, who are not in these occupations and do not come under the benefits of the bill, must necessarily contribute, therefore, by taxation, the percentage which is furnished by the state. In a recent report of the local Government Board for England, it is stated: "Of the number of tuberculosis applicants at Metropolitan dispensaries 3,168 were insured and 13,660 were not insured, and of the applicants at non-Metropolitan dispensaries or those located outside of London 25,865 were insured, whereas 34,644 were not insured."

The medical man under this law is not always able to give his patients his full attention. I summarize a case in the British Medical Journal. The patient was a builder's laborer and was suddenly taken sick with severe abdominal pains and sickness. He went to the panel doctor who was overwhelmed with work and found a long line of insured people who were waiting to get their papers signed. The doctor did not think there was anything serious the matter with the man and did not examine him but gave a simple remedy. The next morning he was still very ill and again saw the doctor who was again overwhelmed with patients and again did not examine him. He died a day or two after without any medical attendance. It is needless to say that the man would no doubt have lived if he had been operated on. The doctor stated at the inquest that he did not have the time, as he was busy six hours at a stretch signing cards and doing clerical work instead of attending to his practice. The jury excused the doctor because of the "scandalous amount of work that was imposed on him under the act" and gave a verdict of "death from natural causes" and added a rider that more care should be exercised in the future in the matter of examining insured persons by doctors under National Insurance Act.

Regarding the German law, no definite statistics are available since 1914, but prior to that time various prominent German officials in their reports stated the necessity for changes in their laws and Dr. E. H. Ochsner says, "I had a splendid opportunity to study the practical workings in Germany and Austria. My conclusion at that time was that health insurance resulted either in high cost to the insured or underpay to the medical man or inefficient service or any two or three of these."

The objections to this bill are numerous. The Social Insurance Department National Civic Federation has furnished a memorandum, giving sixteen items showing the shortcomings and dangers to the proposed bill, some showing loose wording and inaccuracy, or lack of definitions in the bill and dangers in administration. There is nothing in this bill which covers preventive medicine and with a panel of physicians, whose time will be fully occupied with the treatment of these cases, there is small hope that the most elementary steps will be taken in this direction.

Such a bill, it seems to me, is not fair in that only a certain part of wage earners are covered at the expense of others. Nothing has been brought forward to show that these men are less able to pay for their medical attention than other groups of wage earners. It does not cover the floating class of labor and the pauper element. In England this bill has not in any respect changed their Poor Laws. It lessens the independence of the worker and accustoms him to greater dependence for relief on others. It increases malingering. It institutes a new branch of beaurocracy to the many already existing in the state.

As to the effect on the medical profession, I think the result will be a very distinct lowering of the medical standards. The bills provide:—

1. A panel of physicians from whom the patients shall have free choice.
2. Physicians on salary, among whom the insured shall have reasonably free choice.
3. Physicians on salary in prescribed areas.
4. A combination of above methods.

With physicians on a salary from the state, the competition and incentive to better ourselves, which is now so prominent a feature in our profession, will disappear, and the result will be a tendency to slacken on the work and a dropping to mediocrity. There will be an influx of physicians from other states who have not been able to successfully compete with their neighbors and to whom the idea of state medicine will appear Utopian. The result will be a distinctly inferior service to the working man than he is now obtaining.

I am not considering the lowering of income which would be applied to all medical men. Those working for the state would of necessity be working on a small salary which would only be attractive to that class of medical men who for various reasons have not been able to make a living income. Nor am I considering the class of patients that are now charity patients, whose treatment will not be covered by any of the proposed bills but who will remain to be treated by us all. Nor am I considering the fact that all of us who do not belong to the panel will see a material lessening of our incomes. But I have been trying to see it from its economic side, its effect on the manhood of the public who participate in its so-called benefit and the effect on the medical men from the lowering of the professional standards and also the inferior medical service which the public will receive.

So much for the effect on the present generation of medical men, but in the future the results will be deplorable. With the lack of incentive the profession will no longer attract to itself the most promising of our young men but will obtain those of a distinctly inferior type and the result on our medical ideals will be nothing less than disastrous.

ORIGINAL CONTRIBUTIONS

AN ANALYSIS OF THE END RESULTS OF TREATED CHRONIC SEPTIC MYOSITIS, NEURITIS AND ARTHRITIS CASES.*

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The following data have been gathered from a critical analysis of the end results of 138 cases belonging to the group of so-called chronic rheumatisms. These cases have been studied over variable periods of time, in many as long as three, four or five years since treatment was instituted. They form a portion of a larger group of streptococcus infections which have been studied during the past five years, as opportunities have presented themselves, by Dr. Robert L. Benson, Chief of the Department of Pathology of the University of Oregon, and myself, and which will be reported in detail in the near future. All of the serologic studies have been made by Dr. Benson, most of them personally by himself, a few by his associates under his direction.

The reason for making an analysis of the end results of treated cases after a period of years had elapsed was to obtain, if possible, reasonably accurate statistical information as to what may be expected from the treatment of the different types of rheumatisms by the methods instituted largely by, and since the work of, Dr. Billings and his associates on focal infections. Into this series have been placed with few exceptions only those patients from whom recent end result reports have been obtained. These end results, too, have been studied from as unbiased an attitude as it has been possible to assume; for the writer appreciates very keenly the spirit of pessimism with which many physicians view these patients, a pessimism which has probably swung quite as far to the wrong side as our hopes had carried us originally to the other. The entire question to be settled from the patients' view-point is whether there is sufficient relief to be obtained from these principles in a sufficiently large percentage of instances to justify the work and the expense incident to carrying them out.

The cases herewith reported group themselves logically into four groups as detailed in the four main tables, to-wit, chronic septic myositis and neuritis treated with carefully conducted cultural studies and those without, and chronic septic arthritis treated with and without such studies. At the foot of each table the main points of clinical importance are placed in resume. For the most part the patients studied in detail were more severe than those not so studied. The majority of the former were studied in hospital, whereas most of the latter were not. This fact must not be overlooked in comparing, especially the two groups of arthritis cases which showed 37 per cent of failures in the cultured group, as compared to 21 per cent of failures in the non-cultured cases. The patients of the former group also were more consistently and persistently treated than the others, so that, if any conclusion is to be drawn, it must be that, had it been possible to treat the patients of the second group as carefully as those of the first, a still lower percentage of failures would have been obtained with them. Some of the most crippling, deforming and painful of the arthritic cases have given gratifyingly complete end results that have lasted over a period of years. In general it has been noted, on the other hand, that the slowly progressing, deforming and less painful cases are more persistently stubborn and more apt to show complete failure than those with exacerbations of acute swelling and pain. Many exceptions, however, are seen.

The myositis and neuritis cases have shown uniformly better and quicker results following the removal of foci of infection than the joint cases. Only occasionally was resort made to the subsidiary methods of treatment, except for the hydrotherapeutic measures which were used more or less in all of them. Relief often times followed immediately the removal of such foci—so quickly, indeed, that one was led to believe that the neuritis or the myositis in question could not have been of actual infectious origin but was rather due to the toxins absorbed from the foci. Our animal experiments did not throw any light on this point, unless the fact that the injection of a saline or broth suspension of the tonsil or tooth culture usually gave rise to an abrupt toxic rise and fall of temperature before the animal showed clinical evidence of the specific infection taking place, which might suggest a toxic origin of the patients' trouble. Some of the neuritis cases were, however, very intractable and lasted a number of months after the focal infections were removed, during which time many subsidiary measures were made use of. Few relapses were noted in these cases. Whenever such relapses did occur, one usually found further focal infections causing them. Especially was this true where dental sepsis had been the cause. Subsequent to dental extractions the pulps of formerly living teeth bcame inflamed, died and permitted apical abscesses to form, the removal of which again gave relief. One relapsing case of myositis was due to a recurring right antrum infection, the removal of which gave relief without further measures.

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It may be noted, in the table of cultured myositis and neuritis cases, that in all the animals only non-hemolytic streptococci were obtained from the lesions. No deductions were made from this, because of the small number of cases studied and because in the arthritis cases we were able to find no relationship between the type of lesion in the human or in the animals and the strain of streptococci found. One might assume from Pemberton's recent report of his work with arthritis in the Army that a streptococcus hemolyticus was looked upon as possibly specific in the 21 of his 34 cases studied serologically, or else other strains of streptococci happened to be absent. In the 44 cases of this series studied serologically, 33 gave for the most part pure cultures of non-hemolytic streptococci, 12 a hemolytic streptococcus, 5 a non-hemolytic streptococcus viridans and 2 a hemolytic streptococcus viridans. In the arthritis group of 38 cases apparently the same type of lesions were found, both in the human and in the animals, from these different strains. A marked elective action on the part of the organisms is to be noted in this series. Seventy-one per cent positive muscle and joint lesions were found in the arthritis group, and 100 per cent positive muscle and tendon sheath lesions in the myositis-neuritis group. Strangely we found no nerve lesions in the animals, as has been repeatedly found by Rosenow, altho diligent search was made for them. With this one exception, our work has been strongly corroborative of Rosenow's work.

In the treatment of all the cases the principles have been divided into, first, the radical removal of all foci of infection, and, second, the subsidiary measures. Some of our complete failures have been associated with the refusal on the part of the patient to permit the removal of some or all of such foci. It is, of course, problematical what influence this has had in these failures.

The statement made by Lilly and Lyons in their statistical report of 200 cases of arthritis and myositis, that improvement is assured in 79 per cent of all by tonsillectomy alone, may hold in the myositis group, but I would not expect it to hold true in arthritis cases. Many of our results only came after carrying out the subsidiary measures of treatment over a long time. The greatest criticism of Lilly and Lyons' report is the time factor of one year. Many arthritis cases are known to relapse severely after periods of one, two, or more years. Pemberton reports that in his series of 400 cases, 184, or 46 per cent, recovered in the presence of demonstrable surgical foci; but here again the time factor is too short, it being but nine months.

The subsidiary measures of treatment which we have employed in our cases to a more or less degree are: (1) Mechanical and hydrotherapeutic, (2) autogenous vaccines, (3) stock vaccines, (4), foreign proteins, (5) radium, (6) dietetic, and (7) climatic.

Massage, baking, etc., were used more or less in most of the patients. Autogenous vaccines gave us rather uniformly better results than did stock vaccines. With a number of patients suffering from a severe grade of arthritis, in whom more or less progressive results were being obtained, resort to a stock vaccine had to be made by reason of exhausting the original supply, and uniformly less results were noted from its use. This stock vaccine was prepared by combining eight or ten strains from the arthritis cases then being studied and known to produce specific lesions in animals. It was also noted many times that subculturing destroyed whatever specificity the organism may have had originally for the individual patient. These things recurring as they did made us believe that there was probably more than a non-specific protein reaction to the autogenous vaccine and we finally prevented the above mentioned possible happenings by preparing a large amount of vaccine at once from the original animal cultures. All in all I think we obtained better results from the autogenous vaccines than we did from all of the other measures combined, altho this is difficult to say, because most of these patients had some of the other measures applied alternatingly or at the same time.

Typhoid proteins were used with much less benefit than the vaccines. They were started in small doses—5 or 10 million—according to the physical state of the patient, the presence of marked asthenia, anemia, etc., and no doses larger than 60 million were given. Case No. 14,469 was a most instructive study and it also showed clearly that the use of a typhoid protein is not free from danger. The patient, a gaunt built man of 29 years, had been profoundly sick and crippled with a progressing deforming arthritis for eleven months. Tonsil cultures gave a pure culture of a nonhemolytic streptococcus which was negative to animals. The severe dental sepsis gave in pure culture a hemolytic streptococcus viridans which produced in several rabbits lesions of the peritoneum, pleurae, lungs and lymph glands, from which the organism was again obtained. No lesions of the joints or muscles were produced. While awaiting the making of a vaccine, the patient was given three injections of 5, 10 and 5 million typhoid protein, respectively, at intervals of five and seven days. During the period of the last reaction he developed a confluent bronchopneumonia with which he died. Autopsy gave a hemolytic streptococcus virdans from the lungs, pleurae and peritoneal fluid. The patient also had scattered syphilitic lesions of the heart, aorta, liver and pia-arachnoid. Blood Wassermanns had been negative during life. In the few syphilitic and alcoholic arthritic patients treated we obtained no results.

Radium was used intravenously in a few cases. In two it afforded the most relief of anything employed, but by no means anything like complete relief. The metabolic work of Pemberton has not been carried out with any of the patients of this series. We have two arthritics now under observation and we are watching these with much interest. One is a very severe multiple deforming case, upon whom much work has been done during the past few years without any results and the other is a well-nourished woman with a moderate grade of inflammation limited to the right knee, who was free from pain and swelling for a week or two after tonsillectomy and then relapsed as badly as ever.* The arthritic conditions in several general asthenic patients were notably benefited by forced feeding and the general reconstructive principles underlying such work. One patient in the series received her final relief from a short residence near the Imperial Valley in Southern California. She has had three insignificant relapses since coming home three years ago, but is practically well.

We return, then, in conclusion to the question mentioned above, as to whether this detailed, time-consuming, and often expensive work is worth while from the patient's standpoint. In the myositis-neuritis group there can be no debate, as the smaller cultured series gave much relief in 100 per cent and the larger non-cultured series in 78 per cent. Many factors enter into the same question as regards the arthritic group. Many arthritic patients receive temporary relief with no treatment, many are hopelessly incurable in the face of the most painstaking treatment, and seemingly there is no chance to study such patients in control series. In view, however,of the experimental evidence in favor of a specific etiologic relationship between some strains of streptococci and the joint lesions of chronic septic rheumatism and because we were able seemingly to obtain by these methods of treatment reasonably good results in 48 per cent of the cultured series and 64 per cent in the non-cultured series, we personally have learned to believe in these principles. We believe firmly in the radical removal of all suspicious surgical foci and we entertain no regrets in these cases when a suspicious focus is found to be innocent after its removal.

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*These two patients later showed no effect upon their arthritis from low protein diets.

TABLE I

MYOSITIS AND NEURITIS—NO CULTURES

Cases	Location	Duration	Site of Infection	Duration Since Treatment	RESULT				Remarks
					0	+	2+	3+	
3175	neck shoulders lumbar	7 yrs.	tonsils teeth	5 yrs.		+			
3630	lumbar legs esp. l.	15 yrs.	tonsils teeth	4 yrs.				+	
4205	general	26 yrs.	tonsils	4 yrs.				+	
4265	r. shoulder	20 yrs.	tonsils	5 yrs				+	
5116	general muscular	25 yrs.	tonsils teeth	4 yrs.			+		two slight relapses
5840	neck, shoulders all muscles	1 yr.	tonsils teeth	3 yrs.			+		
6357	neck l. shoulder	1 mth.	tonsils teeth	4 yrs.				+	
6810	general	4 yrs.	tonsils, teeth sinus. ear	3 yrs.				+	

7249	occipital	1 yr.	tonsils	9 mths.				+	
8181	l. shoulder and arm	6 mths.	tonsils teeth	3 yrs.				+	
8189	general	12 yrs.	tonsils teeth	3 mths.				+	one relapse with more abscessed teeth.
8264	r. arm r. leg.	9 mth.	tonsils teeth	3 yrs.				+	
8399	r. arm	1 wk.	teeth	3 yrs. not treated				+	hydrotherapy only
8569	shoulder	1 yr. +	tonsils teeth	2½ yrs.				+	
9034	general	9 mths.	tonsils teeth	2 yrs. +	+				more abscessed teeth.
9642	r. sciatic l. arm	9 yrs.	tonsil	2 yrs.		+			general health better.
10429	l. knee and leg	7mths.	tonsils teeth	2 yrs.				+	
10878	lumbar	18 yrs.	tonsils	2 yrs.	+				improper treatment.
10908	general	yrs.	tonsils teeth	9 yrs.			+		
11161	r. shoulder lumbar	10 yrs.	tonsils teeth	1½ yrs.			+		
11601	r. shoulder and arm	4 yrs.	tonsils teeth	1½ yrs.				+	+ use of guinine.
11730	l. sciatic	6 mths.	tonsils teeth	1½ yrs. dental sepsis removed only.			+		
						0	2	5	
11929	r. shoulder shoulder	8 wks.	tonsils teeth	1½ yrs.				+	
12523	l. arm both legs.	5 yrs.	"	1 yr.			+		
12721	neck, back r. leg.	yrs.	"	1 yr.		+			
12859	shoulders	"	"	1 yr.				+	
12923	r. shoulder and arm	1 yr.	"	10 mths.			+		pain gone—still stiff
12979	suboccipital	4 yrs.	tonsils	not treated	0				
13082	r. shoulder and neck	yrs.	tonsils teeth	2 yrs.			+		
13101	lumbar	1 yr.	"	not treated	0				
13128	l. chest	6 mths.	tonsil	1 yr.				+	
13681	lumbar	yrs.	tonsils teeth	9 mths.				+	
13768	l. leg	4 mths.	"	6 mths.				+	
13845	general	10 yrs.	"	9 mths.			+		
13855	back and chest	1 yr.	"	8 mths.		+			
13897	l. shoulder	3 yrs.	tonsils, teeth fallopian tubes	not treated	0				
14031	general	6 mths.	tonsils teeth	1½ yrs.			+		
14425	lumbar, back	1 yr.	"	5 mths.				+	
15010	legs and arms	1 yr.	tonsils	13 yrs. relapse, influenza				+	
15259	r. shoulder	1 yr.	teeth	2 mths.			+		
	l. shoulder	2 mths.	teeth	6 yrs.				+	
	r. sciatic	3 mths.	"	1 "				+	
	r. shoulder	10 d.	"	1 yr.				+	

Resume' Myositis and Neuritis.—without cultures
Cases........42.
Results—no relief........5.—11.90%
some relief........4.— 9.52%
much relief........11.—26.19%
practically complete relief........22.—52.39%
} 88.1

TABLE II
ARTHRITIS—NO CULTURES

Cases	Location	Duration	Site of infection	Duration Since Treatment	RESULT 0	+	2+	3+	REMARKS
3039	knees ankle neck	35 yrs. 1 yr.	tonsils teeth	5 yrs.	0				relief for 6 months, then returned with sinus infection and stills remains periodically.
3277	knees	4 mths.	tonsils	5 yrs.			+		
3123	r. elbow l. eye	2 yrs.	l. u. 2 bic. tooth	3 yrs.				+	complete cure with healing of cornea.
4020	hands feet	7 yrs.	tonsils	3 yrs.			+		relapses with cold weather said to be much improved with thyroid extract.
4210	hands ankles	15 yrs.	tonsils	5 yrs.				+	
4663	feet hands general	15 yrs.	tonsils teeth	4 yrs.				+	
5045	spine knees ankles	3 yrs.	tonsils teeth	4 yrs.	0				

5048	acute	3 yrs. 2 yrs.	teeth tonsils	4 yrs.			+		elderly woman, cardio, sclerotic good result. Slight stiffness and pain in cold weather.
5530	l. jaw	4 mths.	teeth	4 yrs.				+	
5797	fingers, wrist r. knee r. ankle	1 mth.	tonsils	4 yrs.		+			fingers and wrists releved knee and ankle stiff at times.
5849	thumbs toes wrists	2 mths.	tonsils	4 yrs.				+	
6546	feet l. shoulder	3 yrs.	teeth	3 yrs.			+		Severe relapse 1 yr. later little trouble for 2 yrs.
6647	shoulders elbows hands, feet	1 yr.	tonsils teeth	3 yrs.	0				
6779	elbows hands knees, feet	30 yrs.	tonsils teeth	1 yrs.	0				prophylactic dental work only.
6928	fingers, knee back jaw	10 yrs.	tonsils teeth	7 yrs.			+		under Billings, cultured vaccine invalid 5 yrs. earned living last 4 yrs.
6929	many	21 yrs.	tonsils teeth	5 yrs.		+			Severe deforming arthritis, much relief from pain.
7184	fingers	5 yrs.	teeth	3 yrs.	0				
7675	fingers knees	8 yrs.	tonsils	3 yrs.			+		mild case, much relief.
8028	l. knee	1 yr.	tonsils	2 yrs.				+	
8113	r. knee r. elbow	1½ yrs.	tonsils	3 yrs.			+		One very slight relapse, result good.
8137	knees, arms shoulders	6 wks.	tonsils	3 yrs.	0				
8507	shoulders hands knees, feet	11 yrs.	teeth	3 yrs.			+		prophylatic work only.
8921	knees hips	28 yrs.	tonsils teeth	2 yrs.					slow progressive improvement general health good.
9032	hands, fingers neck, knees elbows shoulders	30 yrs.	tonsils	2 yrs. +			+		very much relieved, swelling gone occasional pain and stiffness with change of weather.
9066	hands, knees ankles	20 yrs..	tonsils teeth	2ffl yrs.			+		much relief
9993	neck hands ankles	10 mths.	tonsils teeth	2 yrs.			+		mild relapse in winter, dental sepsis not removed.
10011	acute	10 wks.	tonsils	2 yrs.				+	rheumatic heart remains.
10016	l. knee	10 yrs.	tonsils teeth	2 yrs.			+		stiffness on longwalks. formerly used crutches 1½ yrs.
10133	fingers r. arm	1 yr.	tonsils	2 yrs.			+		good result.
10291	r. knee	8 mths.	tonsils, teeth	2 yrs.			+		tires on long walks.
10371	fingers ankles toes	6 mths.	tonsils	2 yrs.				+	entirely free for one year.
10185	dorso-lumbar spine	9 yrs.	tonsils teeth	2 yrs.			+		some stiffness remains, much relief.
10823	left sacro-iliac	1 mth.	teeth	1¾ yrs.				+	
10878	lumbar spine	9 mths.	tonsils	1¾ yrs.	0				
10926	hips	2 yrs.	prostate, g. c. teeth	2 yrs.	0				bedridden
11121	acute	3 wks.	tonsils teeth	1½ yrs.				+	
11199	cervico-dorsal spine, knees	8 yrs.	tonsils teeth	1½ yrs.		+			knees o. k. spine-negative + chronic back strain
11723	l. elbow	10 wks.	tonsil	1½ yrs.			+		elbow still stiff. good functional use no pain.
11876	cervico-lumbar spine	several yrs.	teeth	2 yrs.			+		cervical arthritis was severe, 65 yrs' old, cardio-sclerotic much relief given
12173	knees	29 yrs.	tonsils teeth	1 yr.				+	final relief from arch supports.
12479	acute	1 wk.	tonsil	1 yr.				+	
12527	many	4 yrs.	tonsils (removed) teeth (pericemental)	1 yr.		+			stock vaccine-no relief typhoid protein-some relief.
13037	r. shoulder r. knee	5 yrs.	tonsils	1 yr.			+		r. knee o. k. r shoulder still lame was injured in 1915.
13389	many joints	11 yrs.	tonsils teeth	9 mths.	0				gen. health improved.
						0		2	2
13462	feet hands general	10 mths.	tonsils	9 mths.			+		much relief total invalid returned to work.
13470	general	19 yrs.	tonsils teeth	9 mths.	0				under Billings-foci removed typhoid protein, Brooks protein and stock vaccine used.

13714	acute	1 yr.	tonsils	9 mths.			+	acute attack relieved, still stiffness and hurting arms and legs.
13991	wrists, knees ankles feet	2 wks.	tonsils	9 mths.			+	75 yrs. old—cardio-scerotic. much relief.
14202	neck r. hand r. knee	8 yrs.	tonsils (removed) teeth (removed)	8 mths.		+		much relief, relapse past winter. still under treatment.
14331	arms, legs.	3½ yrs.	tonsils, teeth	9 mths.			+	patient reports almost well.
14829	r. hip	2 yrs.	tonsils, teeth	3 mths.	0			typhoid protein used, under treatment.

RESUME'
Arthritis without cultures.
Cases 51.
Results.

No relief.......................... 11—21.57%
Some relief.......................... 7—13.37%
Much relief..........................21—41.18%
Practically complete relief..........................12—23.52%
} 78.4 } 64.7%

Table III
KEY TO ANIMAL LESIONS

1. muscles, muscle sheaths and tendons.
2. joints
3. heart
4. kidneys.
5. gall bladder.
6. liver.
7. gastro-intestinal tract.
8. peritoneum.
9. pleurae.
10. lungs.
11. meninges.
12. skin and sub. cut. tissue.
13. spleen.
14. adrenals.
15. testicles.
16. thymus.
17. eyes.
18. lymph glands.
19. ears.

Table IV
Septic Myositis and Neuritis with Cultures

				ANIMAL RESULTS				
Cases	Disease Duration	Location	Site of Infection	Organisms	Lesions	Duration Since Treat-ment	Clinical Results	**REMARKS**
5539	5 yrs.	general musclar soreness and pain.	tonsils (removed) r. antrum.	n. h. strep	1, 4, 5, 6 7, 10, 17	4 yrs.	3+	relieved by washing antrum.
5279	18 yrs.	"	tonsils (removed) teeth	"	1, 2, 3, 4, 10 11,14, 17.	4 yrs.	2+	late report not received.
7381	years.	neck shoulders, l. arm, hips and back	tonsils	"	1, 2, 4,	3 yrs.	3+	died 1 yr. ago of small pox. autog. cavcine used.
7712	2½ yrs.	shoulders, neck and spine	tonsils, teeth	"	1, 2,	3 yrs.	3+	autog. vaccine used. one slight relapse.
7828	1 yr.	r. arm	teeth	"	1	3 yrs.	3+	last report 15 mos. ago. autog. vaccine used.
13002	3 mth.	r. shoulder and arm.	tonsil teeth	"	1, 4, 10	1 yr.	2+	almost complete relief.

RESUME.

M 6 cases
Results 4 relief..........................66+%
M 2 much benefited..........................33+% } 100%

Autogenous vaccine used in 3 with seemingly good results.
Hydro-therapeutic and mechanical measures used in all.
Non-hemolytic streptococci obtained in all.

Table V
Chronic Septic Arthritis With Cultures

				Animal Results		Clinical Results					
Cases	Disease Duration	Location	Site of Infection	Organisms	Lesions	Duration Since Treatment	0	+	2+	3+	**Remarks**
3542	1 yr.	wrists	tonsils teeth	Strep. v.	3, 16	5 yrs.			+		Radium gave most relief
5016	14 yrs.	knees cervical spine	teeth	Strep. h.	1, 2, 3, 4, 7 14, 16, 10	4 yrs.	0				Syphilitic autog, vaccine used.
5095	9 mths.	elbows, hands, knees, ankles, feet, l. hip.	tonsils	strep. h. staph.	3	4 yrs.				+	autog. vaccine gave most relief. mild case.
5138	25 yrs.	many	tonsils teeth	strep. h. staph.	2, 3, 8 10, 11	2½ yrs.			+		hydrotherapy.
5201	5 yrs.	many	tonsil	n. h. strep. staph. aur.	3, 4, 6, 7 10, 13	3½ yrs.		+			autog vaccine made worse much improved later by hydrotherapy and change of climate

5209	2 yrs.	hands knees	tonsil	n. h. strep.	2	3 years			+		no result from autog. vaccine, relief from warm climate, several slight relapses since.
5246	6 mths.	knees r. elbow l. hip	teeth	strep. h.	1, 3	4 yrs.				+	severe case autog. vaccine gave most relief
5465	2 yrs.	large joints	tonsils teeth	strep. h.	1, 3, 4, 6 10, 16	4 yrs.	0				not well treated.
5497	periodic for years	many	tonsil dental	n .h. strep.	1, 2, 3, 4, 5, 6, 8 10, 12, 13, 14, 15, 16, 17,	3½ yrs.			+		very good results. joints some enlarged result largely due to autog. vaccine.
5521	2 yrs.	knees	teeth	strep. h.	1, 2, 3, 4, 5, 6, 7, 16, 18.	4 yrs.					later an operative death details not known.
5526	5 years	l. elbow and leg r. shoulder	tonsils teeth	strep. h. ''	2, 6, 10	4 yrs.					Death later— sarcoma.
5701	2½ yrs.	hands feet knees	tonsil teeth	n. h. strep. staph.	neg.	3½ yrs.	0				used autog. vaccine
5779	2 yrs.	r. knee	tonsil	strep. h. staph. al.	3, 4, 19	3½ yrs.			+		autog. vaccine used late report not obtained.
5910	8 mths	knees wrists, hands cerv. spine	tonsils teeth	strep. h.	negative	4½ yrs.		+			partial ankylosis of knees much less pain
6401	18 yrs.	shoulders hands knees	''	n. h. strep. ''	2, 12	3½ yrs.			+		autog. vaccine used result very good
7221	4 yrs.	many	''	n. h. strep.	2, 10	3 yrs.	0				autog. vaccine used no result
7286	years	hands feet	''	strep. v.	2	2½ yrs.		+			radium and heat gave most relief
7409	12 yrs. periodic	hips l. foot	prostatic fluid	gonococci	negative	3½ yrs.			+		autog vaccine gave good results. late report not obtained.
7452	20 yrs.	many joints	teeth	n. h. strep.	1	3 yrs.					not traced
7859	1 yr.	'' ''	tonsils teeth	n. h. strep. n. h. strep. and staph.	no lesions	3 yrs.					not traced
7855	2 yrs.	many	tonsil teeth	not cultured n. h. strep. staph.	negative	2½ yrs.	0				not treated tonsils not removed
8885	2 yrs.	many	tonsils teeth	n. h. strep.	4 neg.		0				died after one year
9089	23 yrs.	many joints	tonsils prostate g. c.	n. h. strep. strep.	1, 2,	2½ yrs.			+		much relief with some relapses severe case autog. vaccines urethral irrigations
9484	8 yrs. 11 wks.	many	tonsils teeth	n. h. strep. staph.	2	2 yrs.	+		+		periodic slight relapses, much improved. autog. vaccine used. very good result.
9525	30 yrs.	many joints esp. hips.	''	''	1, 4	2 yrs.			+		some relapses associated with tooth abscesses. severe case. autog. vaccine
10242	8 mths.	all large joints	''	''	rapid death of animals local kidney lesions only. strep. sapticemia	2 yrs.				+	slightly enlarged joints remain. No distress. hydrotherapy only. Severe case.
11377	9 mths.	many joints.	tonsils teeth —	n. h. strep. not removed	records lost	1½ yrs.	0				Severe case. Autog vaccine from tonsils. Infection foci from teeth not re'v'd.
11422	12 yrs.	''	tonsils teeth	n. h. strep.	''	1½ yrs.			+		Severe case—very great relief—some relapses. Autog. vaccine gave most relief.
12077	15 mths.	''	teeth	''	negative	1 yr.			+		Severe case-much improv still under treatment. autog vaccine and typhoid protein.
13325	8 yrs.	''	tonsils.	h. strep. v.	1, 8	1 yr.	0				Severe case. bedridden. autog. vaccine.
13360	9 mths.	many	tonsils teeth	n. h. strep. ''	2, 3, 4, 6, 13, 19.	9 mths.		+			Very severe case—bedridden from knee contractures autog. vaccine typhoid protein, radium, Brooks protein, slow relief
13636	18 yrs.	hands and feet l. shoulder	''	strep. v.	2	9 mths.	0				slow deforming type. not treated.
13864	1½ yrs.	wrists, r. shoulder r. knee neck	tonsils — teeth	0 strep. v.	no lesions.	9 mths.		+			relief with typhoid protein.
13869	1½ yrs.	wrist knees	tonsils (removed) teeth	n. h. strep.	negative	8 mths	0				temporary relief under typhoid protein. treatment not carried out.
14113	10 mths.	many	''	''	''	8 mths.	0				Severe Case. stock vaccine. Typhoid protein. no results.

14469	11 mth.	"	tonsil — teeth —	n. h. strep. strep. V. &. H.	negative 8, 9, 10, 18	1 mth.	0		Syphilis-death-Bronchopneumonia following typhoid protein injection. Autopsy, { H. strep. v. from lungs. pleura and peritoneal fluid.
15052	6 wks.	shoulders hands	tonsils teeth —	strep. h. staph. aur. not removed	4, 10	not treated	0		remains same.
15248	6 mths.	wrists, r. shoulder	tonsils	strep. h.	2, 3, 4	2 mths		+	seems to be improving rapidly under autog. vaccine.
	2 mths.	foot.	teeth	strep. v.	1, 2, 3, 10	1 yr.		+	one relapse with abscessed tooth. Relief by extraction.

Resume

Cases	39		
Cases traced	35		
Results, no relief	13—37.1%		
some relief	5—14.3%	62.8%	
moderate relief	13—37.1%		48.5%
complete relief	4—11.4%		

Animal results in 38 cases.

positive lesions	28	20 in muscles and joints	71.4%
		8 not in " "	28.6%
negative	8		
records lost	2 (known to be positive)		

Streptoccoci cultured from foci.

1—nonhemolytic streptococci	27—58.7%
2—streptococcus hemolyticus	12—26.1%
3—nonhemolytic strep. veridans	5—10.9%
4—hemolytic strep. veridans	2— 4.3%

Autogenous vaccine used in 20 cases.

Seemingly benefited results in	13—65%
" no results in	7—35%

Foreign proteins used in 6 cases.

some relief	3
No relief	3

Radium used in 6 cases.

Some relief	2
No relief	1

OBSERVATIONS ON THE TREATMENT OF SEPTIC ARTHRITIS OF THE KNEE JOINT.*

Everett O. Jones, M. D.
SEATTLE, WASH.

Since the war a great deal has been said and written about war time surgery of the knee-joint. The object of this report is to record our experiences with these cases in the United States Army Base Hospital No. 50. It is not the object of this paper to discuss the immediate treatment of gunshot wounds of the knee-joint, but since we had the opportunity of seeing some of the results of early treatment, a word or two may not be amiss.

Sixty-six cases of wounds of all sorts involving the knee-joint were admitted to the hospital. Of these, twenty-four consisted of penetrating wounds without bone injury. All these cases received substantially the same treatment at the Evacuation Hospitals. The joint cavity was entirely exposed by sufficiently large incisions, a complete debridement was done, removing foreign bodies, dirt and devitalized tissue. The joint cavity was then washed out either with ether or normal saline solution, and the wounds closed completely with separate suture for the capsule and skin. Only five of these cases showed subsequent suppuration. The remaining nineteen all healed primarily and when evacuated had nearly normal range of motion in the joint, in spite of the fact that active mobilization was but imperfectly carried out with most of them. Too much cannot be said in praise of this method of treating penetrating wounds of joints. It is one lesson from military surgery which we will do well to apply in civil practice.

We had thirty-three cases of septic arthritis of the knee-joint. These cases for convenience may be divided into four principal groups:

First: Metastatic arthritis. There were four cases in this group, three resulting from suppurating wounds in other parts of the body, one complicating a case of pneumonia. Streptococci were present in all. One patient had involvement of both knees.

Second: Penetrating wounds of the joint without bone injury. There were five cases in this group. Streptococcus was present in all.

Third: Penetrating wounds of the joint with varying degrees of injury to the articulating surfaces of the bones; the head of the tibia, the condyles of the femur, and the patella, varying from slight injury of the articulating cartilage to considerable destruction of bone. In this group the infection was due to a variety of causes—streptococci, staphylococci, colon bacilli and in three cases to gas-producing microorganisms.

Fourth: Compound infected fractures of the shaft of the femur or tibia with fissures extending from the main seat of fracture into the joint cavity. In these cases the compound fracture is the predominant condition and the septic arthritis only a complication but, since its onset presents a distinct and positive indication for treatment, they are considered here.

TREATMENT.

1. The four cases of metastatic arthritis in this series were all treated by aspiration with subsequent injection of formalin and glycerine. The limb was put up in a Thomas splint with moderate extension for three days and then active mobilization was instituted. All recovered. The inflammatory process in these cases was clinically of a very mild type and did not present indications for

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*Read before the North Pacific Surgical Association, Portland, Ore., Dec. 12, 1919.

any more radical line of treatment than was employed.

2. Arthritis following penetrating wounds of the joint. These cases were all treated by long lateral incisions, placed as far back as possible, extending from the head of the tibia up to the upper limit of the subcrural pouch which was freely opened. The joint was not explored or irrigated unless the x-ray showed the presence of foreign bodies or bone fragments. The wounds were left entirely open and the parts covered with a voluminous dressing of fluffed gauze. Within thirty-six hours active mobilization was instituted. To carry this out properly requires a great deal of time and patience and it was found that it could be done better by an intelligent interested nurse than by anyone else. The object is to voluntarily flex and extend the knee. This was done under supervision at least twice a day. Oftener would be better but stress of work prevented more individual attention to any one case.

The greatest difficulty was encountered in overcoming the patient's fear and encouraging him to make the first moves. After the first two or three days he could see the improvement himself and was very willing to carry on the treatment. In two of the cases there was so much pain and stiffness, due to swelling of the soft parts, that an apparatus of suspending weights and pulleys was employed, which swung the limb and permitted flexion and extension with very little muscular exertion. No passive motion is to be employed at any time. As soon as the temperature is normal and pain has disappeared, the patient is encouraged to bear his weight on the leg and take a few steps, even tho the wounds be still discharging profusely.

The wounds were allowed to close in and heal by granulation. No secondary suture was performed. This in the main follows the technic laid down by Willems. We were not able to follow strictly all of Willems' directions, because stress of work and lack of sufficient assistance did not permit of it. The main principles were adhered to as closely as possible and our results were very gratifying. The five cases of this group all recovered. Three of them when evacuated had almost complete range of motion and the other two about fifty per cent with every prospect of further improvement. Our experience with the Willems treatment lead us to think very highly of it for certain selected cases, where there was little or no injury to the articulating surfaces of the bones. In these cases it was found to be perfectly feasible to maintain motion during treatment and to try for a recovery without ankylosis.

3. But all cases of septic arthritis cannot be treated in the same manner, as our experience with those cases complicated with injuries to the articulating surfaces taught us. It was found that many of these cases could not be treated without continuous immobilization.

Two cases with slight injury of the condyles of the femur were treated wth active mobilization, the septic process subsided satisfactorily, the patents, however, suffered rather more pain and discomfort and when evacuated had about 25 per cent of the normal range of motion. In three cases active mobilization had to be abandoned because of pain and lack of improvement and fixation in a splint was substituted.

The routine treatment for cases of this group consisted in the long lateral incisions previously described, the removal of all fragments of necrotic bone, immobilization of the leg in a Thomas splint and usually the application of moderate extension.

Two cases were treated with thru and thru Dakin tubes. No advantage was found in this and it was not continued. In most of the cases Dakin tubes were placed in the incisions just outside the capsule. Carrel-Dakin solution was used until the discharge ceased to be purulent, when the tubes were removed, dry dressings applied and the wounds allowed to granulate up.

The splints were continued varying lengths of time, depending upon the nature and extent of the bone injury. Twenty-seven cases of group 3 were subjected to this treatment. Of these sixteen were cured, the septic process subsided, the patients were evacuated with practically complete ankylosis.

Eleven of the cases were not cured by this treatment. The septic process persisted, the joint capsule burst, and pus burrowed up the thigh and down the leg in the fascial planes, forming numerous pockets which were successively evacuated only to be succeeded by others, until finally, when the septic emaciated patient was almost moribund, amputation was resorted to. The writer is one of those who, by reason of military experience, has been converted to the belief that amputation is more often justifiable in these cases than he had formerly thought.

Various procedures were tried from time to time in these serious septic cases in an effort to avoid amputation. At one time a series of cases were treated by complete exposure of the joint with division of all the structures, the patella was reflected onto the thigh, the leg held in a position of extreme knee flexion and all the exposed surfaces were kept continuously bathed in Dakin solution. This treatment did not have the slightest effect and amputation had to be resorted in every case.

As a result of our experience we adopted the rule that cases of group 3 that did not improve with the use of free lateral incisions, but went on to the development of pus pockets in the thigh and leg, and all of the cases of group 4, as soon as purulent arthritis developed, should be subjected to immediate amputation before the patient's strength had been undermined by a severe general sepsis.

Cases of group 3 with severe bone injury demand some of the most difficult decisions which a surgeon is called upon to make. In general, however, it may be said that, whenever pus pockets appear in the leg or thigh, showing that the joint capsule has burst, the time for conservative treatment has passed. In cases of group 4, on the other hand, the question of decision is an easy one. All compound fractures of the lower end of the femur or the upper end of the tibia, which are infected and which show fissures extending into the articular surfaces of the knee, on the appearance of pus in the joint should without exception be amputated at once. This treatment in the end is inevitable and a policy of driftng and procrastination only results in an increased mortality.

In conclusion, let me say that in suitable cases the Willems method of active mobilization has been found a most useful procedure. It is a method which should find a wider sphere of usefulness in civil than it did in military practice.

That in cases of arthritis with more or less bone destruction, our aim should be a cure with ankylosis.

And, finally, in those cases of fulminating sepsis which display a tendency to spread beyond the confines of the joint capsule, a policy of procrastination is a most dangerous thing. Reasonably early amputation will most certainly save the life of the patient.

Palestine Medical Journal. Palestine's first medical journal, "Harefooah," (Medicine), has just made its appearance, published by the Jewish Association of Palestine. The journal is a quarterly and its first issue is dedicated to the memory of the Jewish physicians and nurses, who "lay down their lives in the years of upheaval in the Holy Land."

The objects of the medical association, as outlined in the quarterly are to strengthen and coordinate the medical forces of the country and to collaborate with doctors outside Palestine; to give the medical work a national as well as a humane value; to prepare a native soil for Jewish scientists; and to help in the creation of the Hebrew University.

Medical work in Palestine has advanced rapidly during the past two years, stimulated by the American physicians and nurses with the American Zionist Medical Unit, who have taught the native members of the professon, all the latest ideas in medical work and sanitation. Clinics are held by the American doctors, to demonstrate to the Palestinian doctors, the most modern methods, and lectures are given at regular intervals.

The hospitals and clinics established by the American Zionist Medical Unit in Palestine, are planned as the beginnings of the Medical College of the Hebrew University at Jerusalem, which Prof. Patrick Geddes, noted town planner of the University of Edinburgh, is designing.

Condylomata Acuminata. Among 7,700 gynecologic patients, condylomata acuminata were observed twenty times, or approximately once in 400 cases. Of these patients the youngest was 12, the oldest 30. Most frequently the site of the lesion was the labia, but it occurs also on the perineum and within the vagina. Among the twenty cases studied by A. N. Creadick, New Haven, Conn. (Journal A. M. A., Oct. 16, 1920), ten gave a strongly positive Wassermann reaction. In five others with a negative Wassermann the presence of gonorrheal infection was demonstrated by smears; in two the clinical history indicated a previous infection, but gonococci were not found. On the other hand, in three instances no evidence of gonorrhea or syphilis was obtained either from the history or from the clinical examination of the patient. Seven of the twenty women were pregnant; and in one case the mass, measuring 10 by 16 by 5 cm., completely covered the external genitalia, hung over the perineum and closed the introitus. Surgical excision offers the most efficient method of treatment. In the case which presented the largest condylomata of the series, the growths were excised during pregnancy. The healing was prompt, there was no recurrence, and two months later the patient was delivered spontaneously of a normal infant.

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EDITORIAL

PROGRESS OF TUBERCULOSIS WORK IN THE NORTHWEST.

For a number of years the Washington Tuberculosis Association has conducted a state-wide campaign for the dissemination of information concerning the prevention and spread of tuberculosis. At the same time the State Board of Health has had a general supervision over the work in the state. In order to obtain more effective results in the treatment of tuberculosis, the board recently created a Bureau of Tuberculosis, in which will be placed all activities in the field of tuberculosis, for which the state board is responsible by legislative act. Mrs. Bethesda B. Buchanan, who has been the executive secretary of the Washington Tuberculosis Association since its organization, has been appointed director of this new state bureau. The latter will not absorb the work of the former, but this appointment will provide an effective opportunity for the cooperation of tuberculosis work of both bodies.

At this time it is fitting to remind our readers that the work of the tuberculosis associations of all the states is made possible by the annual sale of tuberculosis christmas seals, under the auspices of the National Tuberculosis Association. The income from this sale is divided according to definite proportions between the national association and those of the states in which the sales take place. No other call is made upon the public for the support of these organizations, in addition to the receipts from this annual sale. Therefore, the efficiency of this tuberculosis work is determined by the liberality in the purchase of these seals. The date for this year's sale is from December 1 to 11. The medical profession can accomplish nothing more effective for the promotion of the campaign against tuberculosis in their respective states than by their endorsement of this sale of seals to their clienteles, and urging a liberal purchase on their part.

CHIROPRACTIC LUCIDITY.

During recent months a representative of the chiropractics, said to be the father of this cult, has received much newspaper publicity in the cities of the Northwest, where he has devoted much time to enlightening the public in the mysteries of healing as expounded under the designation of chiropractic. He is reported to claim that a very large portion of the mental, physical and moral ailments, to which mankind is subject, can be relieved by the manipulations and passes of the practitioners of the cult which he has been boosting. He announced the wonderful discovery to an expectant and waiting public, that most of the ills of the human flesh are due to mal-adjustments of the twelfth dorsal vertebra. Both in public and private seances he manipulated the spines of all comers, none barred, and reduced subluxations galore and ad nauseum.

Naturally the man on the street wanted to know what it all means, this wonderful chiropractic, the boon to suffering mankind. Here it is, as clear as mud and as brilliant as darkness, published as a legal definition in the chiropractic bill recently passed by the New Jersey legislature: "The term chiropractic when used in this act shall be construed to mean and to be the name given to the study and application of a universal philosophy of biology, theology, theosophy, health, disease, death; the science of the cause of diseases, and the art of permitting the restoration of the triune relationships between all attributes necessary to normal composite forms, to harmonious quantities and qualities by placing in juxtaposition the abnormal concrete positions of definite mechanical portions with each other." If this fails to satisfy the dazed and wondering seeker after knowledge, for further information let him "ask George". He knows if he will only tell.

ARMY AND NAVY MEDICAL OFFICERS ASSOCIATION.

The Army and Navy Medical Officers Association of Washington was organized at Tacoma, Sept. 17. It was stated that the purpose of the organization was to assemble in one body all of the medical officers who had served in the recent war. Dr. J. B. Eagleson, of Seattle, is President and Dr. Edmund H. Smith, of Seattle, is Secretary. It was decided to hold an annual meeting. It is requested that all medical officers of the state who served during the war should forward their names for membership to the secretary as soon as possible.

NEW ADVERTISEMENTS.

Attention of readers is called to the advertisement of National Medico-Specialties Laboratories (pages 14-15), appearing for the first time in this issue. This concern carries a line of medical specialties that will interest all practitioners. The Radium Company of Colorado (page 8) offers radium in various applicators ready for use in practice. The Holly Press (page 13) furnishes case record forms according to hospital standardization. Keady-Guerin & Co., (page 25) are investment brokers.

MEDICAL NOTES

OREGON.

Home From Abroad. Dr. Henry Waldo Coe of Portland, editor of the **Medical Sentinel** for twenty-eight years, has returned from a four months trip thru Europe. He visited many places of interest and attended the conference of the British Association for the Advancement of Science and the International Surgical Association. During his absence several communications were published in his customary vigorous style, detailing his experiences and observations.

State Health Officer Resigns. Dr. David N. Roberg, of Portland, who has served for five years as Secretary for the State Board of Health, has resigned from this office. Dr. Andrew C. Smith has been temporarily appointed to the office. He has been connected with the State Board of Health for the last seventeen years.

Infantile Paralysis. Last month it was reported that an epidemic of infantile paralysis existed at Yacolt. There was talk of closing the schools in consequence of the sickness among the children.

WASHINGTON.

New Hospital Completed. The Virginia Mason Hospital, of Seattle, has been completed, and has been opened for the reception of patients. It is the property of a medical clinic composed of nine physicians. It is a seven story, reenforced concrete structure, costing $250,000. It is erected in a commanding situation on the first hill, overlooking the sound and the mountains. It is planned for seventy-five beds, sixty of which are available at present. The two lower floors are devoted to clinical work and the others to hospital beds. It contains all equipment of a modern hospital and with the largest appliances for diagnosis. While owned by a private concern, the hospital is available to all physicians for the treatment of their own patients.

Plans for New Hospital. At a largely attended meeting of the Loyal Legion of Lumbermen at Gray's Harbor last month, it was decided to build a hospital under the auspices of this organization. It is proposed to build the first unit of fifty beds at an expense of $75,000 which will later be enlarged to two hundred and fifty. The hospital will probably be located at Hoquiam.

Addition to Hospital. The addition to the Deaconess Hospital at Wenatchee is now under construction. It will contain seventy beds and will cost about $100,000. An additional sum will be spent on furnishings and equipment. When this is completed the old building will be used as a nurses home and training school.

Hospital for Alaska. About six weeks ago the equipment for a modern hospital was shipped to Point Barrow, Alaska, the most northern point on the American continent. The hospital is under the supervision of the Presbyterian Board of Missions, and will be utilized in caring for the natives of that region.

Hospital Sold. The hospital at Elma, which has been conducted for several years by Dr. E. P. French, has been purchased by Dr. M. W. Conway. Improvements are being made on the building and additional equipment is being installed. Dr. French has gone to Southern California, where he will make his future home.

New Hospital Completed. The St. Joseph's Hospital at Aberdeen has been completed and is now occupied. The hospital is constructed of brick, four stories in height, at the cost of more than $100,000. It has equipment for fifty beds. The old building will be used in conjunction with the new.

Typhoid Epidemic. There has recently been a small typhoid epidemic in Walla Walla of about a dozen cases, two deaths having been reported. As the city water supply was considered free from suspicion, it was thought that the cases were contracted outside of the city. During September fifteen cases with two deaths were reported in Spokane. The Health department stated that these cases were contracted from outside sources.

Director of National Association. Dr. J. B. Manning, of Seattle, was elected a director of the American Child Hygiene Association at its annual meeting held at St. Louis last month. His term of service will be five years.

Dr. H. D. Brown, of Mt. Vernon, has moved to Seattle, where he will take up work under the U. S. Public Health Service in which he has received an appointment with the rank of Major.

Dr. Pius Rorhrer has moved from Spokane to Seattle, where he will be established for practice.

IDAHO.

New Bacteriologist. Miss Godfrey, recently of the Department of Public Health of Michigan, has been appointed state bacteriologist in place of Hall A. Mader of Boise, recently resigned.

Visiting Nurse Appointed. Mrs. Lila Ely has been appointed visiting nurse for the city of Boise. She will be at the call of physicians for home cases.

Sanatorium to be Built. A sanatorium is to be constructed at Sunnyside which will cost $150,000. It is said that building operations will begin as soon as plans are completed.

Hospital Sold. The Boyd Hospital, at Twin Falls, has been sold to the Sisters of St. Joseph for $170.000. The property is a three story building, occupying a block of land. This is one of the largest and best equipped hospitals in the southern part of Idaho.

Premedics at University. The enrollment in the premedic department of the University at Moscow is said to be 40 per cent greater than a year ago. It is stated that this department has grown steadily for several years and is now the largest in its history.

Obituaries.

Dr. B. E. Cohoon, of Seattle, died at Los Angeles, Calif., on Oct. 22, from chronic endocarditis. He was 36 years of age, born at Emmetsburg, Iowa. He obtained his medical education at the University of Iowa Medical School, from which he graduated in 1908. He served as intern at the Tacoma General Hospital during 1911. In 1912 he was on the staff of the State Hospital for the Insane at Steilacoom. After a period of special study in ear, nose and throat he located for practice in Seattle in 1913. During the past year his health was impaired, for which he moved to Los Angeles about a month before his death.

Dr. R. S. Thompson, of Lewiston Orchards, Ida., died in Phoenix, Ariz. Oct. 16. He was born at Le Clede, Mo., in 1875. At twenty-one years of age he came west but afterwards returned to Missouri for his medical education. For a time he practised at Moscow and in northern Idaho. Later he was located for practice at Vancouver, Wash. For a year or more he has been in Arizona on account of ill health.

REPORTS OF SOCIETY MEETINGS

WASHINGTON STATE MEDICAL ASSOCIATION.

MINUTES OF THE THIRTY-FIRST ANNUAL SESSION OF THE WASHINGTON STATE MEDICAL ASSOCIATION, TACOMA, WASH.

SEPTEMBER 16-17, 1920.

The thirty-first annual session of the Washington State Medical Association was convened at the Hotel Tacoma, Tacoma, Washington, September 16, 1920.

House of Delegates.

FIRST BUSINESS SESSION.

The first meeting of the House of Delegates was called to order by the First Vice-president, Dr. W. D. Read, at 9:30 A. M. On calling the roll a quorum was found present, forty-two delegates answering to their names. The minutes of the last session were not read but were ordered approved as published.

Annual Report of Secretary-Treasurer, (L. E. Smith, Auditor.)

Financial Report.

EXIBIT "A"

Medical Association Fund.

Balance January 1, 1920. ....1796.96

Receipts.

From Membership Dues 1-1-20 to 8-31-20.

Chelan County Society	36.00	
Clallam County Society	12.00	
Grays Harbor County Society	60.00	
King County Society	1242.00	
Lewis County Society	57.00	
Lincoln County Society	42.00	
Pacific County Society	24.00	
Pierce County Society	276.00	
Skagit County Society	54.00	
Snohomish County Society	117.00	
Spokane County Society	492.00	
Stevens County Society	27.00	
Walla Walla County Society	15.00	
Whatcom County Society	90.00	
Whitman County Society	93.00	
Yakima County Society	126.00	
		2763.00
		4559.96

Disbursements.

Lumbermen's Printing Co.,	13.50	
Sec-Treas, Postage, Tel., etc.	52.50	
Dr. F. G. Sproul, over payment of dues,	6.00	
Bank Exchange on checks	2.25	
Clerical, Sec-treas, Salary	750.00	
Journal Northwest Medicine	828.00	
		1652.25
		2907.71
Interest Rec. on Liberty Bonds	21.25	
Interest Rec. on Savings Acc't	15.00	36.25

Balance to Credit this Fund—2943.96

EXIBIT "B"

Legal Defense Fund.

Balance January 1, 1920 ....5092.49

Receipts.

Subscriptions from the following Counties 1-1-20 to 8-31-20.

Benton	1	subscriber	10.00	
Chelan	1	subscriber	10.00	
Cowlitz	3	subscribers	30.00	
Grays Harbor	6	subscribers	60.00	
Grant	2	subscribers	20.00	
King	89	subscribers	890.00	
Kittitas	2	subscribers	20.00	
Kitsap	1	subscriber	10.00	
Klickitat	1	subscriber	10.00	
Lewis	4	subscribers	40.00	
Okanogan	1	subscriber	10.00	
Pacific	1	subscriber	10.00	
Pierce	23	subscribers	230.00	
San Juan	1	subscriber	10.00	
Skagit	4	subscribers	40.00	
Snohomish	1	subscriber	10.00	
Spokane	31	subscribers	310.00	
Stevens	5	subscribers	50.00	
Walla Walla	6	subscribers	60.00	
Wahkiakum	1	subscriber	10.00	
Whatcom	5	subscribers	50.00	
Whitman	2	subscribers	20.00	
Yakima	6	subscribers	60.00	
No record	10	subscribers	100.00	2070.00
				7162.49

Disbursements.

Jan'y 26	Geo. W. Beeler Legal Ser.	25.00	
	Chas. W. Bates, Legal Ser.	112.00	
	Chas W. Bates, Crt Clk. Fees	9.00	
Feb'y 5	Chas. W. Bates, Legal Ser.	100.00	
Feb'y 19	J. A. Colman, Legal Ser.	350.00	
Feb'y 19	J. A. Colman, Crt. Costs	27.00	
Mch. 30	E. J. Cannon, Legal Ser.	151.50	
Aug. 17	J. Speed Smith, Legal Ser.	25.00	799.50

Balance to Credit this Fund—6362.99

EXIBIT "C"

Recapitulation.

Cash on hand January 1, 1920 ....6889.45

Gross Receipts 1-1-20 to 8-31-20.

Membership Dues		2763.00	
Interest		36.25	
Legal Defense		2070.00	
		4869.25	
Disbursements.			
Association	1652.25		
Legal Defense	799.50	2451.75	2417.50
Cash on hand 8-31-20			9306.95
Made up as follows:			
Liberty Bonds		500.00	
Certificates of Deposits		6030.00	
Seattle National Bank		2776.95	9306.95

Deceased Members.

I regret to report the decease of the following members and suggest that suitable action be taken:

Dr. Paul Branch Carter, of Tacoma, a graduate of Univ. of Maryland in 1885. Deceased 7.8.19.

Dr. Royal A. Gove, of Tacoma, a graduate of P. &. S., Keokut, 1878. Deceased 1.21.20.

Dr. Andrew Bucklan MacLean, of Centralia, a graduate of Univ. of Toronto, 1906. Deceased 1.14.20.

Dr. Thomas Primmer, of Centralia, a graduate of Univ. of Trinity, 1886. Deceased 9.3.19.

Dr. Alfred Raymond, of Seattle, a graduate of McGill, 1886, a fellow of this Association. Deceased 12.3.19.

Dr. Martin F. Van Buren, of Tacoma, a graduate of Univ. of Mich., 1871., a charter member of this Association. Deceased 10.11.19.

Respectfully submitted,
(signed) Dr. C. H.Thomson, Sec-treas.

The motion was made and adopted that the financial report of the Secretary-treasurer be accepted and placed on file.

The Chairman then called for a report of the Board of Trustees; the Secretary presented the following:

Report of Board of Trustees.

By direction of the President the Board of Trustees, convened in Tacoma, September 15, 1920 at 9 A. M., at Hotel Tacoma to hear the appeal of Dr. F. W. Rinkenberger vs. the King County Medical Society and the petition of Dr. John H. O'Shea to set aside the proposed amendment of the By-Laws of the Spokane County Medical Society (Article 4, Section 5.)

In regard to the appeal of Dr. F. W. Rinkenberger the Board found that the King County Medical Society had not taken final action and referred the matter back to that County Society.

In regard to the petition of Dr. O'Shea the following motion was adopted by the Board of Trustees and referred to the House of Delegates for final action:

"Moved, that it is the sense of this Board that the amendment of the Spokane County Medical Society (amendment to Article 4, Section 5), is in conflict with the By-Laws of this Association and the A. M. A., and that it is contrary to law; and that the Spokane Society be instructed to strike it from their records."

Note. The above amendment is as follows:

Amendment to Article IV. Section 5.

Contract practice, as the term is used in this amendment, shall be construed as an agreement between a member or members of this society and an employer, or group of employees, lodge, beneficial society or any association whatever, for the furnishing of medical or surgical attention, in which the recipient does not have free choice of his medical attendant or in which the medical attendant renders the service for a reduced fee in consideration of his employment.

This society looks with disfavor on contract practice and forbids its members to engage in such practice.

Any member of this society engaging in contract practice after the dates hereinafter established shall be dropped from membership in this Society on the establishment of proof that he is so engaged.

Recognizing the justice of giving its members an opportunity to adjust themselves to this by-law, the by-law becomes effective July 1, 1920; provided that its members now holding contracts that run longer than that date and from which they cannot be released by that date shall be allowed to complete their contract, but no contracts shall have a longer life than one year from the date of the adoption of this by-law.

Physicians exclusively engaged in contract practice in isolated localities and contracting for care of injured workmen for fees not less than that established by the State Industrial Insurance Commission shall be exempted from the provision of this by-law.

The City Health Officer, County Physician, County Coroner, Physicians to the Schools, their full time assistants and the holders of any medical position now existing under state or national laws shall be exempted from the provisions of this by-law.

Amendment to Article IV. Section 6.

That, "Providing that its members now holding contracts that run longer than date and from which they cannot be released by that date shall be allowed to complete their contract, but no contract shall have a longer life than one year from the date of the adoption of this by-law" be striken out.

The motion was made and seconded that the report be adopted. After lengthy discussion by Drs. H. P. Marshall, C. M. Doland, A. A. Matthews, J. H. O'Shea, C. W. Sharples, J. R. Brown and the following attorneys, Messrs. Langhorn, Cannon and Bates, the roll was called and the motion was adopted by a vote of thirty-two to seven. (A complete transcript of this discussion is on file in the office of the Secretary-Treasurer).

The following recommendations of the Board of Trustees was then presented:

That a committee of seven members of the State Association be appointed by the President for the purpose of reviewing the constitution and by-laws of all the county societies of the State, to the end that they all conform to the constitution and by-laws of the State Association and A. M. A., and to introduce for adoption such amendments to the State constitution and by-laws as may be best for the proper conduct of the business and purposes of the Association; and that they report back to the board of trustees for final action.

An amendment to this motion was offered, directing the Secretary to print and distribute the by-laws of this Association.

This motion and amendment was laid upon the table for one day.

The Secretary presented the following resolution from the Ohio State Medical Association:

Resolution adopted by the House of Delegates of the Ohio State Medical Association, at its last annual meeting, held in Toledo, June 1, 2, and 3, 1920.

"Whereas, in our forty-eight states there are as many seperate medical examining boards, and

"Whereas, licensed physicians in one state may not always practice in other commonwealths without vexatious examinations and expense, and

"Whereas, the government in time of war frequently sent physicians into army camps in other states, and therefore disregarded state boundaries, and

"Whereas, there is practically homogeniety in the anatomical and psychological makeup of the people in the various states, and

"Whereas, the same may be said of the physicians throughout the land.

"Therefore, Be it Resolved, that it is the opinion of the House of Delegates that the right to practice in one state should be extended to include the right to practice medicine in any part of the United States.

"Be it Further Resolved, that a copy of this resolution be sent to the proper officials of all medical societies, and to national and quasi-national medical associations, and that the American Medical Association be especially urged to perfect a plan by which interstate medical practice be made easy as interstate commerce."

This communication was ordered filed.

Dr. R. J. O'Shea moved that the Secretary's allowance of fifty dollars be discontinued and that a competent lay-secretary be employed with a salary not to exceed one hundred and twenty-five dollars. The motion was seconded and adopted.

Dr. Harris called attention to a proposed bill backed by the State Pharmaceutical Association and thought that it would improperly limit physicians in dispensing drugs and medicines. The motion was made and seconded that the matter be referred to the Washington League for the Conservation of Public Health.

The motion was made that the annual dues be increased to four dollars. The motion was laid on the table for one day.

The motion was made and adopted that we endorse the Washington League for the Conservation of Public Health.

The motion was made and seconded that we strike from the list of standing committees the committee on Legislation and Public Policy, for the reason that this Association is no longer interested in politics. The motion was laid on the table for one day.

Dr. A. E. Burns presented the following:

Report of the Committee on Aged and Disabled Members.

In accordance with your request, we have attempted to obtain some information regarding life insurance for the members of the State Medical Association.

As a result of our efforts, the following conclusions, as to what might be done, have been reached.

1st. Organize an insurance company yourselves.

2nd. Purchase insurance as a group from a regular "old line legal reserve" life insurance company. This is known as "Group Insurance."

3rd. All of the members combine together and buy the insurance on a wholesale plan from a regular old line legal reserve company.

4th. Each member to secure his own insurance in the usual manner either from a fraternal association or from old line legal reserve company.

Considering the four plans just mentioned, let us discuss each one separately.

To organize an insurance company or fraternal association yourselves would in the writer's opinion be impractical and altogether inadvisable for the reason that there must be a very large number of policy holders to secure a fair average risk; all of the fraternal associations now in existence have been compelled to increase their rates in order to meet the constantly increasing losses and many of the younger associations have either failed or have been compelled to reinsure their entire liability. Only by the most careful and efficient management under altogether favorable circumstances could such an association even hope to succeed. The average physician or surgeon is entirely too much occupied with his own affairs to devote any time to such a proposition.

Our second plan would be a very desirable one for our society but the difficulty is in getting any insurance company to accept the risk. "Group Life Insurance", according to the legal definition, is that form of life insurance covering not less than fifty employees with or without medical examination, written under a policy issued to the employer, the premium on which is to be paid by the employer or by the employer and employee jointly, and insuring only all of his employees, or all of any class or classes thereof determined by conditions pertaining to the employment, for amounts of insurance based upon some plan which will preclude individual selection, for the benefit of persons other than the employer, provided, however, that when the premium is to be paid by the employer and employee jointly and the benefits of the policy are offered to all eligible employees not less than seventy-five per cent of such employees may be so insured.

Because the members of the Medical Society are not all employed by a common employer, they could not be insured legally under such a contract. Group insurance makes it compulsory for the employer to insure all of his employees or all of any class or classes of employees and does not permit of any selection against the insuring company. Unless it could be made compulsory for all of the members of the society to take this insurance, there would naturally follow a selection against the company because those who were unable to pass the usual medical examination would naturally desire to secure this insurance when no examination is required, but the younger members in good health would not feel the necessity of entering into such a group, when they could perhaps do better as individuals. This plan of Group Insurance must, therefore, be eliminated from our consideration.

The third proposition, "Wholesale Insurance", is simply ordinary life insurance sold to all the members of an organization by one company. When this is done the medical examination required are usually quite simple and many applicants who could not ordinarily pass an examination for life insurance might be accepted by the company if the average of the entire group were satisfactory. This plan has several advantages among which are the following:

Permitting some members to obtain insurance who could not ordinarily pass the required physical examination.

Avoiding the possibility of being solicited by a great many life insurance agents who often take up some valuable time without offering anything really worth while.

The fourth plan needs no discussion as undoubtedly every member of the society carries some form of life insurance and could easily obtain more, if physically fit, from any good life insurance company.

Of the four plans mentioned, only two appear to be at all practicable and if the Society desires further information regarding "Wholesale Insurance", we would be very glad indeed to obtain more detailed data for its consideration. To our knowledge there are not more than two or three Life Insurance Companies writing this class of insurance at the present time.

Answers to the following questions will be desirable and necessary in order to interest any life insurance company in Wholesale Insurance.

1. (a) Will the insurance as to each individual contained within the group follow a prearranged plan or formula?

(b) Will any individual have the right to select the amount of insurance to be issued upon his life, or the form of contract?

(c) What is the amount of insurance desirable per individual?

2. (a) Will premiums be forwarded to the company by the secretary or treasurer?

(b) If not, by whom?

(c) How will the premiums be paid by the individual assured?

3. (a) To whom will policies be delivered?

(b) To whom should premium receipts be sent?

4. (a) Will each individual name the beneficiary under his insurance?

(b) Will the policies be assigned, and if so, to whom?

5. Give a brief description of the purpose of the insurance.

6. Is there any provision to be made for the termination of insurance through the termination of membership?

7. What is the total number to be covered?

8. Give a rough estimate of the ages of the risks to be insured.

	Male	Female
Under 50 years of age		
50 to 59 inclusive		
60 to 69 inclusive		
70 and over		

This plan of insurance is really one of some merit and affords an opportunity for the Society to secure a "made to order" contract which will meet any peculiar requirements of the Society as regards beneficiaries, methods of paying losses or many other points which might be considered necessary.

The plan of securing insurance to pay indemnities for disabilities due to accident or illness presents very much the same problems and difficulties as are found in the life insurance features. There are so many different kinds of accident and health policies being offered by responsible companies, which will readily meet the requirements of any physician or surgeon, that it seems to be much more advisable to leave this feature of insurance out of a group discussion and allow each individual to secure what best meets his own requirements.

It might be possible, however, to interest a good insurance company in a proposition of this kind and certain accident and health indemnity features could be included with the life insurance policies.

On motion the report of the Committee was accepted and directed to continue their investigations.

The following amendment to the By-Laws, having laid on the table for one year, was then accepted:

That the office of president-elect be abolished, this amendment to take effect in 1921.

The Journal Trustees recommended the holding of a tri-state meeting in Portland, in July of next year, this meeting not to take the place of the several association meetings. The report of the Committee was adopted.

The House of Delegates adjourned until the following morning.

SECOND SESSION

The House of Delegates was called to order by the Vice-President, Dr. Read, at 9:30 A. M.

The following amendments to the By-Laws, after having laid on the table one day, were then adopted:

Resolution providing for the revision of the State and County By-Laws.

Motion providing that the annual dues be increased to four dollars.

Motion to strike from the list of standing committees the Committee on Legislation and Public Policy.

The House of Delegates then proceeded to elect the officers for the ensuing year. (Those whose terms did not expire are added to complete the list).

The following were duly elected:

President—
Dr. A. E. Burns, Seattle, term expires 1921
President-Elect—
Dr. W. D. Read, Tacoma, term expires 1922
1st Vice-President—
Dr. H. E. Cleveland, Burlington, tm. expires 1921
2nd Vice-President.
Dr. A. Gerheart, Wenatchee, term expires 1921
Secy-Treasurer
Dr. C. H. Thomson, Seattle, term expires 1922
Asst. Secy-Treasurer.
Dr. J. H. O'Shea, Spokane, term expires 1922
Trustees—
1st District—
Dr. R. J. O'Shea, Seattle, term expires 1922
Dr. H. D. Brown, Mt. Vernon, term expires 1922

Dr. D. A. Nicholson, Seattle, term expires 1921
Dr. E. C. Wheeler, Yakima, term expires 1921
2nd District—
Dr. H. P. Marshall, Spokane, term expires 1922
Dr. S. S. Oppenheimer, Spokane, term expires 1922
Dr. P. E. McCornack, Spokane, term expires 1921
Dr. Elmer Hill, Walla Walla, term expires 1921
Journal Trustees—
Dr. J. B. Manning, Seattle, term expires 1921
Dr. J. P. Brown, Tacoma, term expires 1921
Dr W. C. Speidel, Seattle, term expires 1921
Delegates to A. M. A.
Dr. D. E. McGillivray, Pt. Angeles, tm. exp. 1922
Dr. C. R. McCrary, Tac. tm. exp. alternate 1922
Dr. S. E. Lambert, Spokane, term expires 1921
Dr. G. A. Tripp, So. Bend, tm. exp. alternate 1921

Seattle then being selected as the next place of meeting, the Fourteenth House of Delegates then adjourned sine die.

SCIENTIFIC PROGRAM.

Thursday, September 16, Tacoma Hotel.

Address of Welcome. Mayor S. M. Riddell.

Address by the President, Dr. S. W. Mowers.

Hyperchlorhydria. Dr. M. M. Null, Seattle.
Discussion opened by Dr. H. P. Marshall, Spokane.

Goiter. Dr. G. W. Swift, Seattle.
Discussion opened by Dr. E. R. Ahlman, Hoquiam.

Buffet lunch was served at the Tacoma Hotel at 12 M., at which there was a discussion of the question of Socialized Medicine and the formation of the Washington League for the Conservation of Public Health. A talk was given by Professor Clark Bissett, University of Washington.

2 P. M., Tacoma Hotel.

Encephalitis Lethargica. Dr. D. A. Nicholson, Seattle.
Discussion opened by Dr. W. V. Gulick, Seattle.

Findings of 1000 Gastrointestinal Complaints. Dr. J. M. Blackford, Seattle.
Discussion opened by Dr. Elmer Hill, Walla Walla.

The Interpretation of the Basal Metabolism in Toxic Goiter. Dr. J. Earle Else, Portland, Ore.
Discussion opened by Dr. John Hunt. Seattle.

Growth and Development of the Child During School Age. Isaac A. Abt, Professor Diseases of Children, Northwest Medical School, Chicago.
Discussion opened by Dr. John B. Manning, Seattle.

A Banquet and dance was held at the Tacoma Golf and Country Club at 6 P. M.

Friday, September 17, 9 A. M. Colonial Theatre.

Cholecystectomy on the History. Dr. J. R. Corkery, Spokane.
Discussion opened by Dr. H. P. Howard, Everett.

Infections of the Hand. Dr. Homer D. Dudley, Seattle.
Discussion opened by Dr. H. C. Watkins, Hoquiam

Surgery of the Long Bones. Major P. B. Magnuson, Chicago.
Discussion opened by Dr. H. J. Whitakre, Tacoma.

2 P. M., Tacoma Hotel.

Cancer. Dr. F. S. Bourns, Seattle.
Discussion opened by Dr. E. S. West, Yakima.

Cecal Pathology. Dr. W. D. Read, Tacoma.
Discussion opened by Dr. H. E. Cleveland, Burlington.

Actinomycosis with Special Reference to Cause and Mode of Infection. Dr. W. W. Mattson, Tacoma.
Discussion opened by Dr. Russell T. Congdon, Wenatchee.

Mobilization of Stiff Joints. Dr. Mitchell Landworthy, Spokane.
Discussion opened by Dr. Edward A. Rich, Tacoma

8 P. M., Tacoma Hotel.

On Friday, September 17, at 8 o'clock, there was an open meeting of the Association and the Red Cross, which the general public was invited to attend.

Health Centers. Earl Kirkpatrick, Dean of the School of Extension, University of Oregon.

Siberian Experiences of a Red Cross Nurse. Miss Grace Harrington, Director Department of Nursing and Bureau of Public Health, Northwestern Division, Red Cross.

Meeting Ground of Doctor and Red Cross. F. P. Foisie, Director of Civilian Relief, Northwestern Division, Red Cross.

Before adjournment the annual report of the House of Delegates was read and adopted and the incoming President, Dr. A. E. Burns, was presented to the Association.

C. H. Thomson,
Secretary-Treasurer.

KING COUNTY MEDICAL SOCIETY.

Pres., H. D. Dudley, M. D.; Secty., H. J. Knott. M. D.

The regular meeting of King County Medical Society was held in the Masonic Club Rooms, Seattle, Wash., October 4, 1920. The meeting was called to order by the President at 8:20. The minutes of the previous meeting were read and approved.

Dr. T. W. Buschmann gave a case report of pyloric stenosis in an adult 58 years old, showing the specimen of pylorus removed. The case was diagnosed as cancer and an operation revealed hypertrophy of the pylorus. Pylorectomy was performed.

Papers

Observations Gleaned from Eight Years Experience with Artifical Pneumothorax. By Ray W. Matson, of Portland. Early practice was limited to desperate cases, hence high mortality. Later more careful selection of cases was made and larger amounts of filtered atmospheric air were used.

Drs. Castlen, Rugge, Slyfield and D. C. Hall discussed the paper. Discussion was closed by Dr. Matson, who believes cases have to be selected with care by physical examination and x-ray, when wonderful results have been obtained.

Diagnosis of Brain Tumor with Special Reference to the Labyrinthine Tests. By Dr. Lawrence Selling, of Portland. A detailed discourse of the minute anatomy of the eighth nerve in the central nervous system was given.

Drs. Kistner and Swift discussed the paper. Discussion was closed by Dr. Selling.

Diagnosis of Spinal Tumors. By Dr. W. V. Gulick. He believes the relationship and sequence of history of great importance. Usually first distrubance in posterior roots, the cord segment below usually being involved. Time is an essential to diagnosis.

In discussion Dr. Nicholson stated that special stress is laid upon history and the length of time which has elapsed in various cases reported.

Dr. Selling reported the work of Gordon Holmes, of England.

A report on the progress of the Washington League for the Conservation of Public Health was given by Dr. F. S. Bourns.

The applications of Drs. L. J. Palmer, T. Wilt, H. J. Wyckoff, J. Morris, J. B. Stetson and W. C. Riddell were read.

RESOLUTIONS OF KING COUNTY MEDICAL SOCIETY.

Whereas:—God, in His infinite wisdom, has called from our midst our honored colleague and friend, Dr. William H. Stutsman, and
Whereas:—Dr. Stutsman, during the short time he was among us, by his sterling character, his gentleness of spirit and his professional integrity, already had endeared himself to the members of this society, and
Whereas:—This society feels that by his death we have met with a distinct loss, therefore, be it unanimously
Resolved:—That King County Medical Society hereby expresses to his mother and all bereaved relatives its sincerest sympathy, and be it further
Resolved:—That copies of these resolutions, under the seal of the society, be forwarded to his family, be furnished Northwest Medicine for publication and be spread upon the records of this society.

Signed
A. J West
H. V. Wurdemann
E. P. Fick

WHITMAN COUNTY MEDICAL SOCIETY.

Pres., F. A. Bryant, M. D., Secty., M. J. Beistel, M. D.

The Whitman County Medical Society held its monthly meeting at Pullman, Wash., Oct. 18, 1920. There was an attendance of fifty-two, of whom thirty-five came from outside Whitman county.

Papers

Borderline Surgical Problems. By Dr. E. L. White, Lewiston, Ida. He described several cases, giving the laboratory and x-ray findings. The paper was discussed by Dr. S. E. Lambert, of Spokane.

Tuberculosis of the Kidney. By Dr. G. S. Bryan, of Walla Walla. He described the different classes of tuberculous kidneys, giving treatment for each. The paper was discussed by Dr. John Corkery, of Spokane.

End Results in Treating Cases of Chronic Septic Arthritis, Myositis and Neuritis. By Dr. N. W. Jones, of Portland. He described numerous cases with records illustrating the bacterial origin of various forms of inflammation. The paper was discussed by Drs. H. P. Marshall, Joseph Asprey, and C. F. Eikenbary, of Spokane.

Some Minor Perplexities in Pediatrics. By Dr. P. D. Mc Cornack, of Spokane. He discussed numerous ailments of the infant encountered in the practice of the average practitioner. The paper was discussed by Dr. E. H. Current, of Spokane.

The Treatment of Osteomyelitis. By Dr. C. F. Eikenbary, of Spokane. He outlined the early diagnosis and the means for determining it, together with the approved line of treatment. The paper was discussed by Drs. S. E. Lambert and H. P. Marshall, of Spokane.

Acute Mastoiditis. By Dr. G. W. Swift, of Seattle, He outlined the different types of the disease with a treatment for each. The paper was discussed by Drs. Rott, of Spokane, and Berg, of Uniontown.

PUGET SOUND ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY.

Pres., W. S. Cameron, M.D.; Secy, A. F. Mattice, M.D.

A meeting of the Academy was held in Seattle, Wash., Oct. 27 with a large attendance, The President, Dr. Cameron, of Tacoma, was in the chair.

Dr. Bell, of Tacoma, presented a patient with vernal catarrh of the conjunctive. Dr. Mattice reported cures of this condition with radium.

Dr. Swift, of Seattle, presented a case of traumatic pulsating exophthalmos. The eye conditions when first seen by the doctor were described. Ligation of right carotid was performed. A marked improvement of the patient followed.

Dr. Cooke, of Seattle, presented a case of chronic iridocyclitis due to focal infection. A description of the eye conditions was given. Septic condition of tonsils and teeth were described. Tonsils and an abscessed tooth were removed, followed by iridectomy. Discussion of focal infection and iritis followed.

Dr. Wanamaker, of Seattle, presented a case of traumatic injury of the left internal ear, caused by the patient falling from the deck of a ship. Ear conditions were described and the degree of deafness given in detail.

Dr. Mattice showed a case of congenital ptosis of the left upper lid with paresis of the superior rectus. He described operation procedure and asked advice for further treatment.

Dr. Phillip Rice, of San Francisco, read a paper on the treatment of chronic deafness. He showed an instrument he had perfected for the treatment of such cases. He reported a series of cases of all types of deafness, in which marked improvement was obtained.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

Studies in Neurology. By Henry Head, M. D., F. R. S., in conjunction with W. H. R. Rivers, M. D., F. R. S., Gordon Holmes, M. D., C. M. C., James Sherwood, F. R. C. S., Theodore Thompson, M. D., and George Riddock, M. D. 2 vols. pp. 334 and 512. Illustrated. $17.00. Oxford University Press, London and New York, 1920.

These two volumes constitute an original contribution which gives the investigations and conclusions of Dr. Head and his five associates as to the physiologic processes involved in the production of sensation. The peripheral nervous system, the spinal cord and the brain are in turn considered, particularly in the evidence given thru afferent impulses and sensory disturbances; and these studies have been worked out largely thru the observed influence of dissociation upon the correlation of functional states. The nature of the protopathic sensibility and the significance of mass reflex give practical aid in clinical diagnosis. The second volume carries an interesting epilogue and appendix, in which the purpose and problems of the work are reviewed, and the comments of certain critics noted. Studies in Neurology is a contribution to the practice of good medicine. Gulick

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Exophthalmic Goiter and its Non-surgical Treatment By Israel Bram, M. D., Instructor in Clinical medicine, Jefferson Medical College, Philadelphia, etc. 438 pp. $5.50. C. V. Mosby Co., St. Louis. 1920.

Two-thirds of the four hundred and thirty eight pages in this book is given to anatomy, physiology, pathogenesis, symptomatology and diagnosis. In this it will serve as a valuable reference, because the author has been thoro in condensing the various theories and essential facts relating to exophthalmic goiters. The rest of the work is devoted, to a survey of non-surgical procedures in treatment and arguments to support the author's conclusions that the treatment of this disease should be wholly non-surgical. Included in his discussion of the non-surgical treatment are eight carefully reported cases, from which one can gain the information that the improvement is only symptomatic and as yet nothing specific is offered. The author emphasizes the importance of patience and individualism on the part of the physician in carrying out the treatment. A surgeon with knowledge of modern srgical treatment of this disease will not agree with the author's conclusions. The use of the test for basal metabolism in the future will probably do more to convince both internists and surgeons that there are definite indications for both non-surgical and surgical procedures in treating exophthalmic goiter.

Hunt

Infectious Diseases. A practical textbook by Claude Buchanan Ker, M. D., F. R. C. P. Medical Superintendent City Hospital, and Lecturer on Infectious Diseases, University of Edinburgh. Second Edition. Cloth, 627 pp. 7½ x 9½ in. $17.00. Oxford University Press, London and New York. 1920.

In this volume are considered, measles, rubella, scarlet fever, small-pox, vaccinia, chicken pox, typhus and typhoid fevers, diphtheria, erysipelas, whooping cough, mumps, cerebrospinal meningitis and fever hospital problems. This work is the result of the careful study and wide experience in an enormous series of cases in most of the diseases discussed. No more thoro practical treatise exists on the subject. The consideration is equally thoro in all the divisions of the subject, including diagnosis, treatment and prophylaxis. In the matter of differential diagnosis, especially, no more careful or detailed discussion could be desired. The writer prefers the divided dose in giving antidiphtheretic serum, rather than the single large dose of Park, and agrees with Mc Collom that the dose must depend upon one's experience and vary with individual cases. The intravenous injection is considered much more rapid and efficient, where viens are readily found. There is an interesting and extensive study of serum sickness and anaphylaxis. Under erysipelas the author does not know any specific, and finds serum useless, but does not mention leukocytic extract which Alexander Lambert has found so extraordinarily efficient, and which has seemed to possess great value in the experience of the reviewer.

Winslow.

The Microbiology and Microanalysis of Foods. By Albes Schneider, M. D., Ph. D. Professor of Pharmacognosy, College of Pharmacy, Univ. of Nebraska, etc. 262 pp. with 131 Illustrations. Price $3.50 P. Blakiston's Son & Co. Philadelphia, 1920.

Perusal of this book leaves the impression that its preparation has been hasty. Typographic errors are numerous, also as are other errors which it is charitable to term "typographic." For instance: "Cold storage temperature is usually considerable above O (zero) C. and should always be below 40 degrees C. It is, even at its best, a variable temperature ranging between the extremes given." Since 40 degrees C. (104 degrees F.) is temperature rarely attained in the hottest summer weather, it seems rather absurd to associate it with cold storage temperature. Again, describing certain microphotographs, we read: "Streptococcus (staphylococcus) pyogenes and S. aureus. There are three principal species of streptococci (S. pyogenes albus, S. pyogenes aureus and S. pyogenes citrius.)" Here the printer or some one else is badly using his cocci.

Approximately the first half of the book is devoted to platitudes in a medical sense, but probably of value to laymen. In the latter half, however, is much of value to medical men, health officers, dietitians and all food analysts. The miscroscopic histology of the various food stuffs have profuse illustrations. The bacterial content of food stuffs are given and the "danger zone" of bacterial numbers is clearly outlined in each article, where such is a factor in its fitness for food. The work ends with a diet table of over 100 varities of food, giving the percentage each contains of heat, strength, nerve, water and waste products. This table alone would seem to be very valuable. As a whole, the book is quite human, since it is a mixture of good and bad with the good markedly preponderant.

West.

Functional Nerve Diseases. An Epitome of War Experience for the Practitioner, Edited By H. Crichton Miller, M. A., M. D. Late Consulting Neurologist, 4th London General Hospital, Cloth, 208 pp. $4.50. Oxford University Press, London and New York, 1920.

If the reader of this work will begin with the last chapter he will have an advantage, because the summary of Dr. McDougall indicates the several contributing and overlapping factors, and also marks out the common ground found by different observers in such fashion as to aid in a fair estimation of the whole subject. The editor has two chapters of his own. One of these, the "Mother Complex," brings attention to an anxiety factor that is often overlooked. The book is called an epitome of war experience for the practitioner. Ten writers have cooperated, and the fact that their views have been concisely given within two hundred pages adds to the value of the text.

Gulick

NORTHWEST MEDICINE

The Journal of the State Medical Associations of Oregon, Washington, Idaho and Utah

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ORIGINAL CONTRIBUTIONS

INTERNAL SPLINTING OF BONE.*

PAUL B. MAGNUSON, M. D.

CHICAGO, ILL.

The fact that there have been so many contrivances brought forward in the last few years for the internal splinting of bone seems to give direct evidence that no one method is satisfactory in any large percentage of cases. The reasons for dissatisfaction with any one form of apparatus are as follows:

First: Irregularities in the shape of fragments near the site of fracture, which make it impossible to fit many of the contrivances so they will hold firmly.

Second: The variations in density or holding power of the fragments near the site of fracture make them unreliable.

Third: The necessity of loosening muscle attachments to give room for the appliance, and the amount of hemorrhage encountered make some dangerous to the result as well as the patient's life.

Fourth: The direction of pull of the muscles and the leverage which they exert on the fractured bone in any given direction, which have a tendency to displace the fragments after the splint is on, make it compulsory to have a type of appliance which will not permit angulation and does not produce pressure necrosis.

Fifth: The age of the fracture and amount of callus surrounding the location, and contracture present in the attached muscles will not permit the use of many splints which seem to be feasible when seen on paper.

We have here not only surgical problems but also serious mechanical considerations, and the surgeon who starts to do an open reduction of fracture without proper mechanical appliance as well as surgical appliance is headed for trouble as well as disappointment.

The reason for the popularity of the Lane plate has not been its efficiency, but because it did not take any considerable mechanical skill to apply it, nor any special instruments. In spite of the fact that it has been well known for a considerable length of time that steel acted as an irritant and foreign body and that it was necessary to remove the plate in a large percentage of cases, its use has been persisted in because of its ease of application. Steel has never used the tissues kindly, nor have the tissues reciprocated in a kindly manner to the introduction of steel into bone or elsewhere; and the larger the qauntity, the less hospitable nature has been to its retention.

We would not consider an appendectomy well done if we placed a steel band around the stump of the appendix, which it was necessary to remove by a second operation within three months; and why surgeons will persist in using material which they know will probably have to be removed inside of this time, for the splinting of bone , sub-

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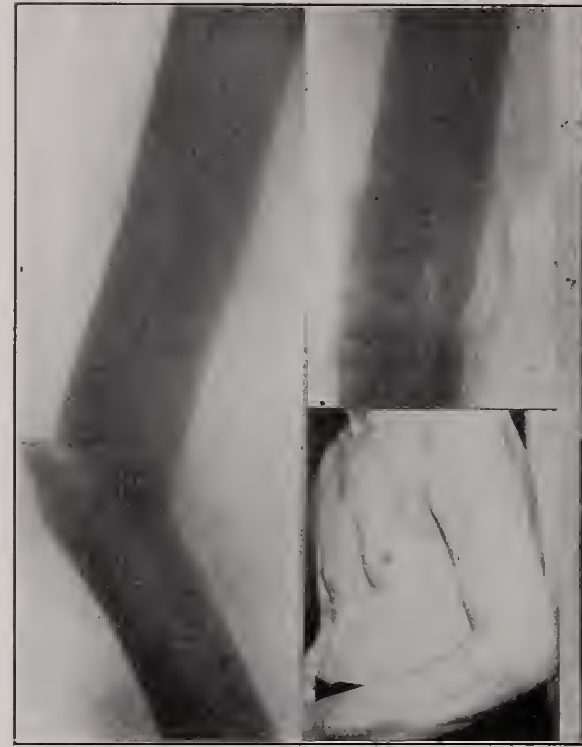
*Read before the Thirty-first Annual Meeting of Washington State Medical Association, Tacoma, Wash., Sept. 16-17, 1920.


a Fig. 1. b

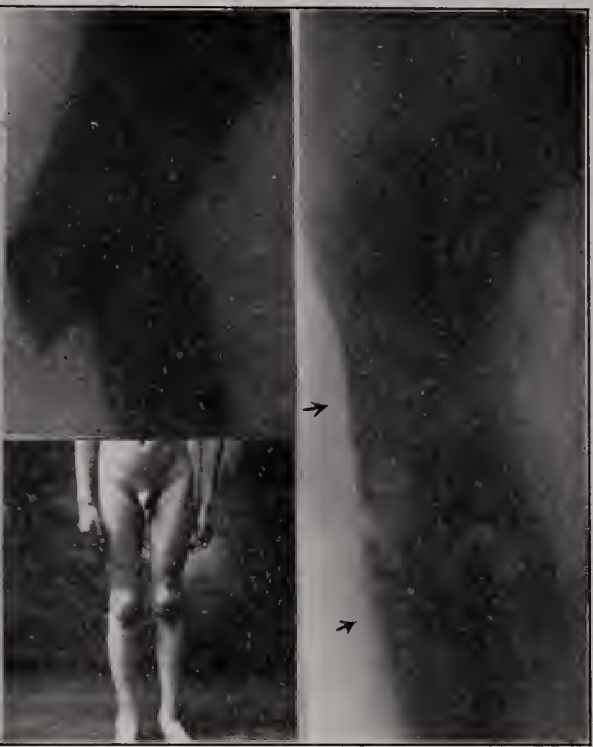

a Fig. 2. b

Fig. 1. Fracture of the humerus retained with ivory plate. A Y-fracture of the lower end of the humerus was reduced three days after the operation. There were no fixation dressing applied to the humerus after the stitches were removed.
Fig. 2. Fracture of the femur, unreducible, boy of 12 years. Ivory plate applied. X-rays taken two and one-half and four months, respectively, after the operation. Ivory plate indicated by arrows in first x-ray following operation. Plate practically disappeared in the x-rays in last exposure.

jecting their patients to two operations where one would do, is more than the average mind can grasp, especially when there are methods which do not necessitate the second operation.

COMPARISON OF VARIOUS METHODS OF INTERNAL SPLINTING OF TRANSVERSE FRACTURES.

Long bones must be considered in the way an engineer considers a shaft, from a mechanical standpoint, and a method selected which will not only give the strongest form of mechanical union, but one which will subject the patient to the least amount of operative traumatism.

There are two forms of cortical bone splints which have been popular; one, the steel plate of Lane, and the other the Boughton and Eck bone plates, fastened in with bone screws. These both act on the same mechanical principle, being screwed on one side of the bone; they do not give even support in all planes, unless one can be placed on each quadrant which would make four plates to a bone. This, of course, is out of the question from a surgical standpoint.

Steel does not usually maintain close contact with bone for any considerable length of time, because of a pressure necrosis of the cells in immediate contact with the steel, especially the screws. The oxide of iron which is produced is also an irritant, and there is a collection of serum around the plate, which is a fertile field for infection at any time. It is our opinion that it is because of this irritation of the tissues by the plate that so many infections occur as the result of its use, and not that the infection is introduced at the time of the operation, since the accumulation of serum around the plate is an extremely favorable breeding place for any colony of bacteria which may be floating in the blood.

In addition to these objections, it would seem that, if one finds it necessary to fix a fracture by open operation, a method in which the surgeon could place confidence and relieve the patient of the long imprisonment in a plaster cast, especially in cases of fracture of the femur, would be much preferable to one where a cast must be worn for the same length of time as tho no operation had been performed. Certainly one does not place such confidence in steel plates, because they do lose their grip on the bone and in many cases also bend.

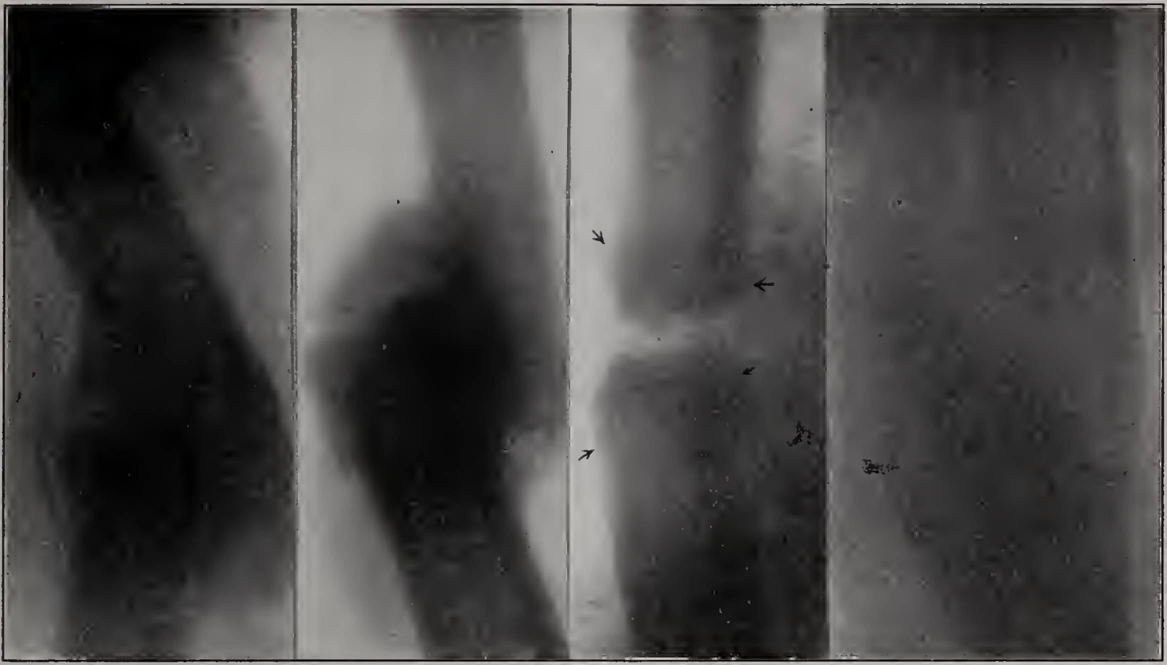


Fig. 3. Fracture of femur, malunited, three and one-half inches of shortening. Open reduction held by ivory plate indicated by arrows with pegs indicated by arrows on the opposite side of the bone. Notice distance of fragments apart where the ends of the bone seem to be separated. This space was entirely filled in by callus as shown in the second x-ray taken two years following the operation. Note disappearance of ivory plate in last x-ray.

Beef-Bone Plates. The beef-bone plates of Boughton and Eck have some advantage over the steel plates, inasmuch as they do not act as an irritating foreign body to either the bone or the soft tissues, and, if proper immobilization by cast can be maintained, they are much preferable to the steel plates. In large bones, especially the femur, we feel that they are unsafe because beef-bone of itself is not strong. The places at which the holes are drilled are necessarily the weakest spots in the plate and it is at these drill holes that the plate is most apt to break. For small bones, such as the radius and ulna and the humerus, they are by all means preferable if some corticle form of bone splinting is required. They, however, do require proper equipment in the way of instruments, such as drills and taps and the special bone screws to fit the plates.

External Bone Clamps. Bone clamps of various types have been devised, which all work on the same principle as the plates, except that they are forced into the cortex by teeth and thereby have a clamping effect in more than one plane. Many of them work nicely in demonstrating fractures, where the fracture is in the middle of the shaft and where the shaft is smooth and almost cylindrical, but as a matter of practice they are extremely unsatisfactory. Bones do not always choose to be fractured at the place where there is a perfectly round shaft, but more often where there are many irregularities and where it is impossible to make any clamp, made to fit a shaft primarily, fit the irregularities properly. They consequently lose their value in a large number of cases. They are also of steel and have this additional objection, since they must be removed in many cases, as must Lane plates.

The Ivory Key A key which fits snugly into a slot in a shaft or, as mechanics call it a key-way, is the strongest form of mechanical union of shafts. The shaft itself is here compelled to form a brace on all sides for the key which is driven into it. In consequence, this form of mechanical union is extremely strong and extremely simple and can be small as compared with the shaft which it unites. It is necessary, of course, to have the proper mechanical equipment to fit a key into a key-way and, therefore, the method has not become as popular as the easier and more ineffectual methods. The key is easy of application if the proper instruments are in the hands of the surgeon, i. e., a motor-driven bone set with parallel circular saws, which are set exactly at the necessary distance to make a slot the thickness of the key to be used.

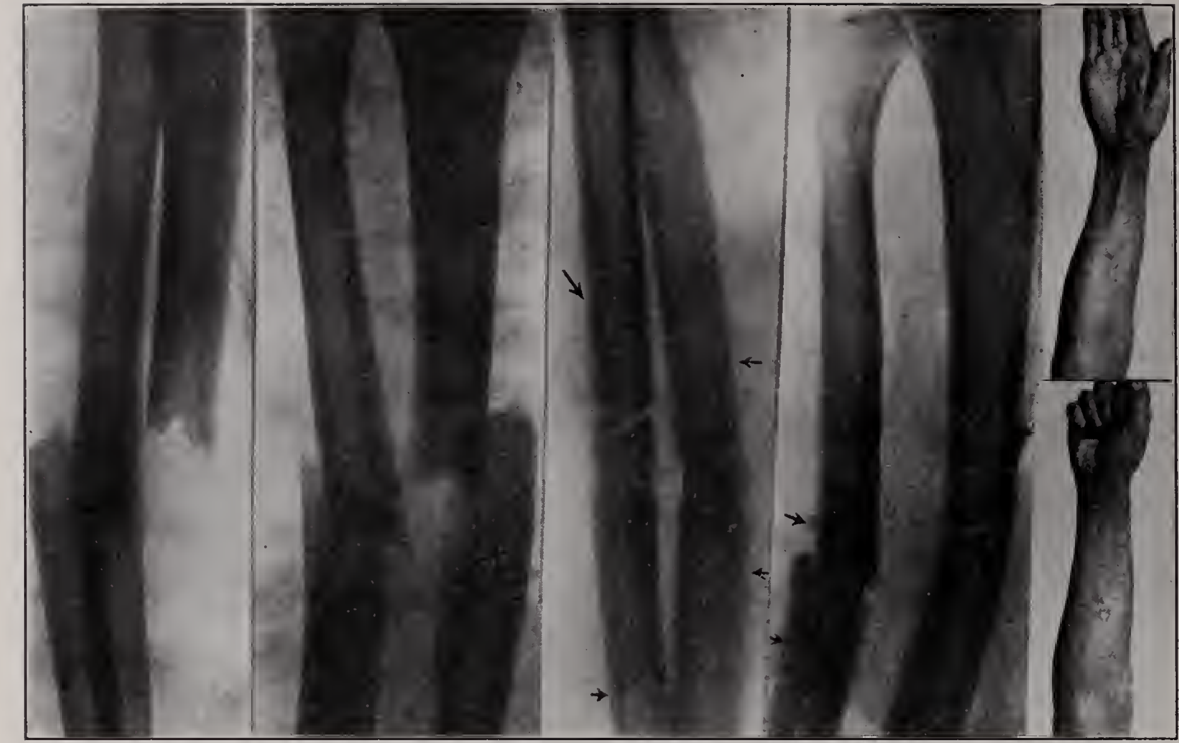


Fig. 4. Fracture both bones of the forearm at the middle with overlapping of fragments. Operated seven weeks after injury where there was a great amount of contracture of the arm muscles. The ulna retained by an ivory plate, the radius by one ivory nail driven in obliquely through one fragment and through the intramedullary cavity of the other. Notice flexibility of the ivory. There is considerable elasticity in ivory which is not possessed by beef-bone. Photographs show final results.

The technic is as follows: A slot three-sixteenth inches wide and one and three--fourths inches long, with its middle at the line of fracture, is cut in the bone with parallel circular saws. At each end of this cut a hole is drilled connecting the two saw cuts (fig. 1). The loosened fragment is then lifted out of the slot, leaving a key-way cut down into the medullary cavity of the bone. A thin chisel made for the purpose, is then used to scrape away the contents of the medullary cavity immediately beneath this slot, so that the key may be driven firmly into the slot and the edge of the plate have a level base to rest against. When the lower edge of the key strikes the medullary side of the opposite cortex and is driven firmly against it, a hole is drilled thru the bone and the plate on either side of the fracture and an ivory peg or nail is driven thru for the sole purpose of holding the plate into the slot and preventing motion in any plane. The pegs are cut off flush with the cortex of the bone, and the upper edge of the plate, if it protrudes beyond the edge of the cortex, is cut off flush, with a small circular saw, so that the entire bone splint is now within the bone; there is nothing projecting to irritate the soft tissues and the union is so firm that the operator can safely reduce the amount of plaster, used for external fixation, to a minimum.

In the femur the cast may be placed from the pelvis to the knee, including the knee on both sides, but cut out in back to allow flexion. This gives lateral support and holds against the lateral pull of the adductors, but does away with the tremendous disability which usually follows long immobilization of the knee on account of fracture in the femur.

In the humerus no fixation need be applied except the ivory plate, after the stitches have been removed from the wound. In the radius and ulna a light anterior or posterior splint on the forearm, with the wrist and the elbow free, is sufficient and in the tibia and fibula the ankle need not be included, unless the fracture is within three inches of the ankle joint.

The advantages of this method are:

(1) Slight traumatism in application, since the plate is short ($1\frac{3}{4}$ x 3/16 x 1 in., largest size; $1\frac{1}{2}$ x $\frac{1}{8}$ x $\frac{3}{4}$ in., small size) and may be put in thru a comparatively small incision without interfering to any considerable extent with the muscle attachments near the seat of fracture.

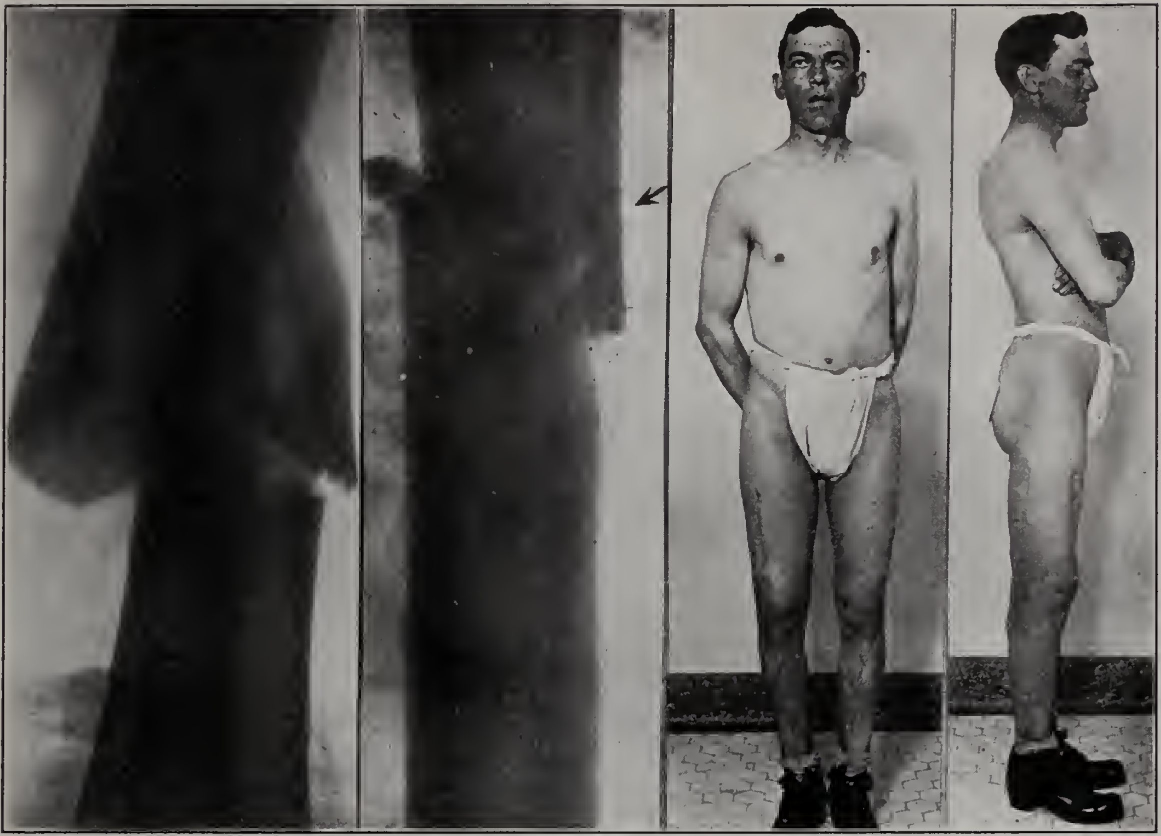


Fig. 6. Oblique and slightly comminuted fracture of femur about junction of the lower and middle third of the shaft. Retained by one ivory screw. Patient returned to work in three months from date of operation with no disability in the knee or leg. Patient up on crutches after tenth day. Note place of incision on the right thigh which is considerably too far forward for convenience in reflecting the vastus externus. The quadriceps or vastus externus should never be cut since it forms adhesions to the bone and limits motion in the knee.

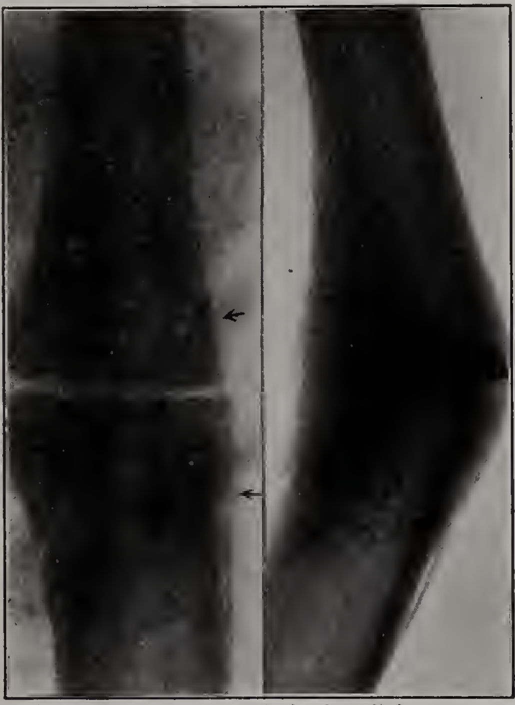


Fig. 5. Parham and Martin band applied to fracture of the femur at the junction of the lower and middle third. Angulation with three inches of shortening Osteotomy performed and fragments held in line by single ivory plate, indicated by arrows.

(2) Ivory is entirely non-irritating to the bone and soft tissues; is an animal material which is absorbable in varying degrees, depending upon the size and hardiness.

(3) Ivory is used instead of beef-bone for one reason only, i. e., it has greater strength than any other animal material.

(4) The immobilization with this method is complete and permanent unless infection occurs, in which case the ivory must be removed as any other foreign material, steel, beef-bone, silk, catgut or bone graft.

(5) Infection does not occur as frequently or as easily as where steel is used, because of the non-irritating and absorbable qualities of ivory (figs. 1a, 2b, 3, 4).

COMPARISON OF VARIOUS METHODS OF INTERNAL FIXATION OF OBLIQUE FRACTURES.

The fixation of oblique fractures should be and is extremely simple. There is no excuse for using a plate of any kind in fixation of these.

Steel Band. The Parham and Martin band (fig. 5), which is a simple band of malleable steel, has

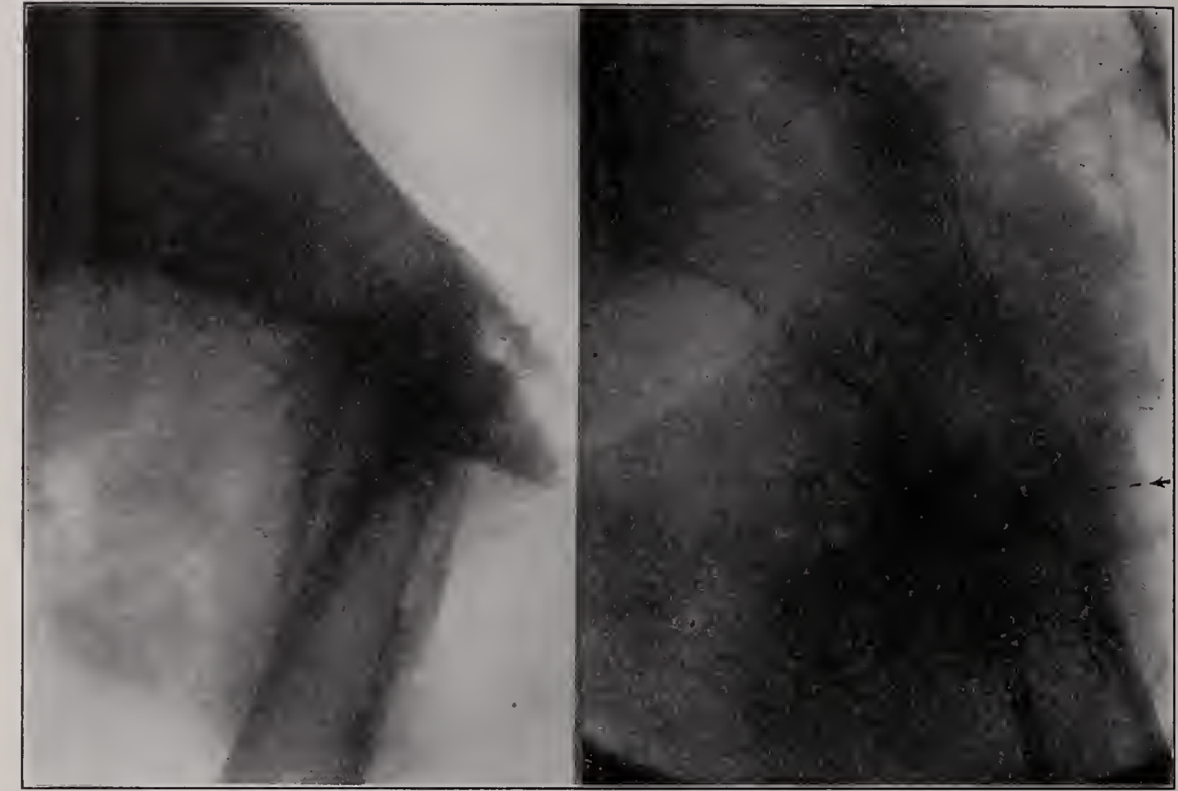


Fig. 7. Malunited fracture of left femur at the junction of the upper and middle third, infected following Lane-plate operation, and with six and one-half inches of shortening two and one-half years following fracture. Next plate, final result with three inches of shortening remaining on account of necessity of cutting off the friable ends, indicated by dotted line and arrows.

come into considerable favor. This is placed around the fracture and clamped in place by the use of a special instrument. One can see where this apparatus would be extremely useful, where there was a considerable amount of comminution and where it was necessary to bind a bundle of fairly large fragments together, and it is believed that this should be included in the equipment of the surgeon who does fracture work.

In case of simple, oblique fractures, however, there is no method which is as simple, quick and sure as the use of a simple screw. The same objections hold in the case of steel or metal screws as obtain in steel or metal plates, and the same objections to beef-bone screws as beef-bone plates i. e., their lack of strength.

Ivory Screw. The ivory screw which is made exactly as a machine screw, with heavy V-shaped threads and a square head so that it can be put in by a socket wrench instead of a screw driver, is the very simplest form of mechanical union. A hole the size of the diameter of the screw, taken at the base of the threads, is drilled at any angle to the plane of fracture. A tap, such as mechanics use for cutting threads on the inside of metal nuts, is run thru and cuts a thread exactly the size and diameter as the screw to be used. The screw is then driven into this hole and holds the fragments firmly in apposition. This screw should be driven only as far as the opposite cortex and should be cut off at the proximal side of the cortex flush with the outer surface of the bone. If the fracture is a long oblique one, two screws may be used in the larger bones, but one is usually sufficient. This locks the rough edges of the fragments closely together and allows no free motion betwen them. There is no need for loosening muscle attachments from the fractured fragments, since the space occupied by the retention apparatus is extremely small, and the work is done from one side of the bone only, so that the circulation is not interfered with in any way and there is an extremely small amount of trauma. These plates and screws with the necessary instruments for their application are sold by surgical instrument dealers and are made to fit to four one thousands of an inch. (Figs. 6, 7 and 8).

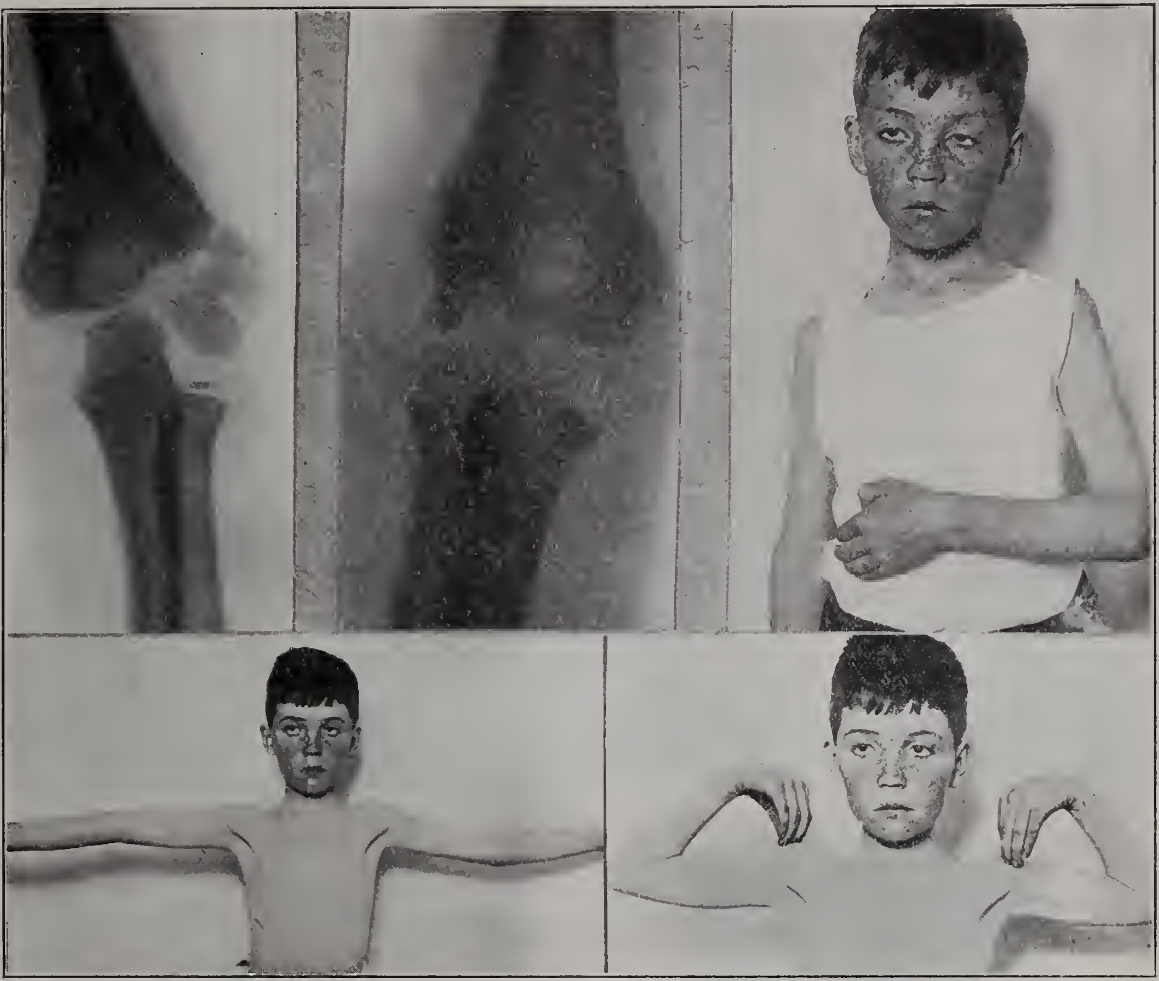


Fig. 8. Fracture of the external condyle left humerus. Operation performed eight months following injury; condyle removed. excess callus cleared from humerus; condyle replaced and held by ivory screw run from above downward. Articular surface not interfered with. 15 degrees of motion previous to operation. Photograph shows motion three months following operation.

COMPARISON OF VARIOUS METHODS OF APPLYING AND RETAINING BONE GRAFTS.

1. *Inlay Graft,* which is probably the most popular form of bone graft, is ideal when applied to the tibia, where bone grafting is at its simplest. This bone, of course, lies immediately under the skin and there are no surgical complications to prevent any type of bone graft here, because of its accessibility and its size. When the inlay type of graft, however, is applied to the other bones, we meet with certain serious objections.

(a) It is necessary to go to the tibia to remove a graft for inlay in the usual way, which makes two operations, where one should be enough.

(b) The small bones, such as the radius and ulna, are not great enough in diameter to allow the introduction of a piece of new bone without seriously reducing the strength and vitality of the fractured bone.

(c) In the femur the inlay graft necessitates a large amount of bone cutting and dissection of muscles, which adds to the seriousness of the operation. When it is necessary to add to the shock of the operation on the femur the additional shock of removal of a substantial piece of bone from the tibia, it is sometimes an extremely serious matter for both the surgeon and the patient.

When it is taken into consideration that these inlay bone grafts have been entirely held into their bed by kangaroo tendon run thru drill holes at the edge of the slot, we have an additional objection which from a mechanical standpoint is extremely serious. String and wire have always been a poor form of mechanical union and one would hesitate to place any confidence in a mechanical device which was put together with either of these materials; but surgeons have placed implicit confidence in a few strands of kangaroo tendon to hold

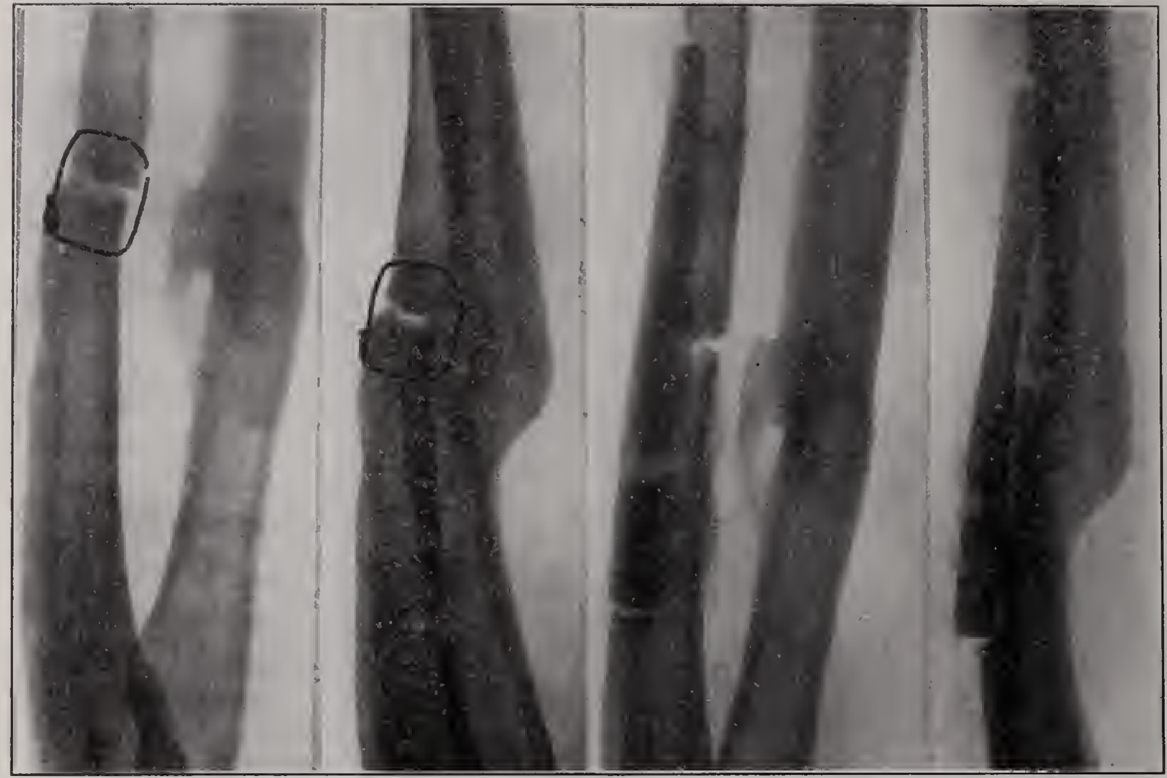


Fig. 10. Overlay bone graft for ununited fracture of the ulna. This patient had been operated twice before. Note ivory screws put in obliquely so that they will not act as pivot on which graft may turn. Patient immobilized ten days only.

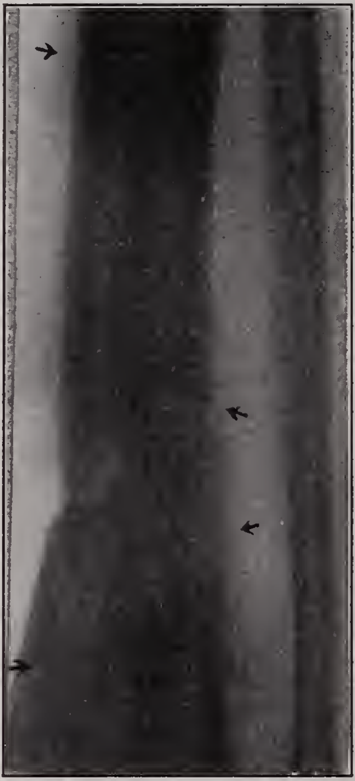


Fig. 9. Inlay bone graft. Position retained by ivory screws through the graft and into the fragments on each side of the fracture. Length of graft indicated by arrows; screws indicated by arrows on opposite side.

in place a bone graft which was subject to displacement by the constant pull of the muscles attached to the fractured fragments, and expected this poor form of mechanical union to hold against the pull of these muscles.

It is true that they have often been disappointed in spite of the fact that heavy casts have been applied which completely immobilize the injured member and the joints above and below it. These inlay bone grafts constitute a key in a key-way and can be so placed and so fixed in the key-way that the necessity for strong immobilization from the outside is done away with by simply using an ivory or bone screw to fix the graft into the slot, where a graft of sufficient size is used to allow the use of a screw. This we have been using and advocating for some twelve years with extremely satisfactory results. Instead of drilling many small holes along the edge of the slot, one hole is drilled near each end of the graft into the cortex on the opposite side; threads are cut in this with the usual mechanic's tap and the ivory screw driven thru the graft and into the solid bone, afterwards being cut off flush with the graft (fig. 9). This holds the fragments firmly together and the graft firmly into the slot, allowing no motion in any

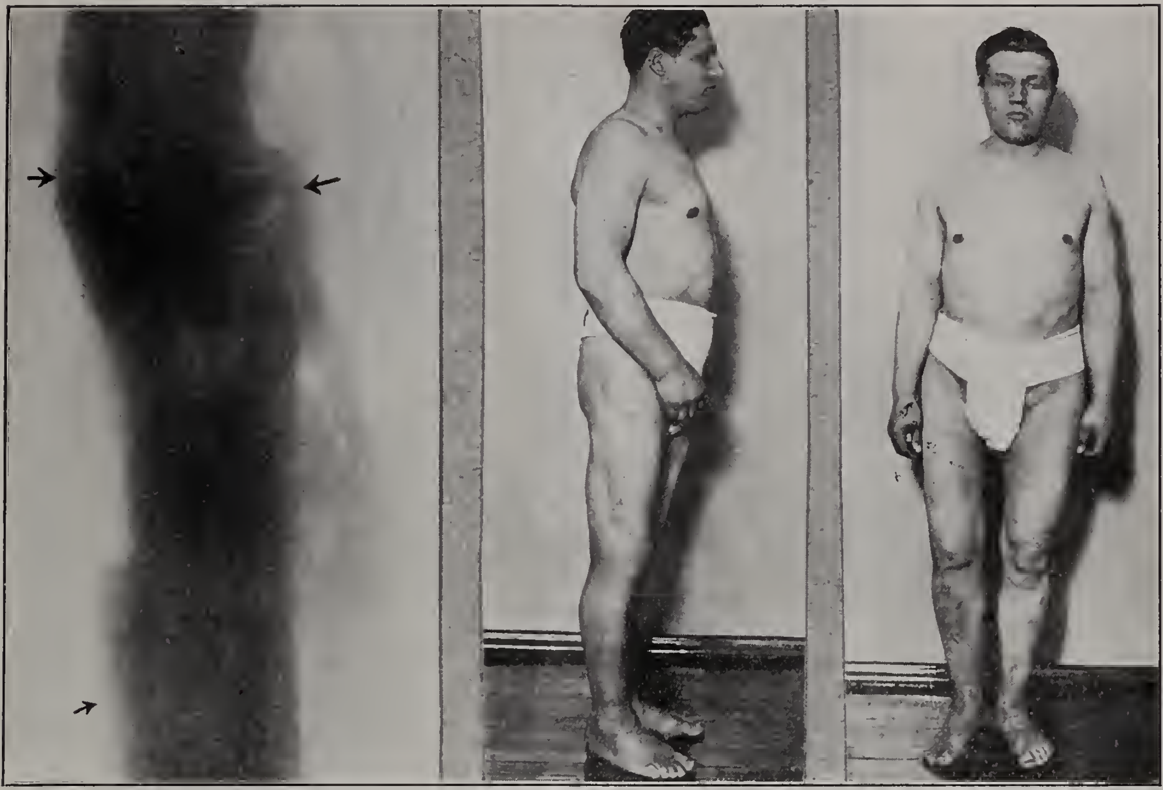


Fig. 11. Combination intramedullary and inlay graft. Length of graft indicated by arrows and screws indicated by arrow on opposite side. Photograph shows final result.

plane. It is much simpler and quicker than the kangaroo tendon method, and it will be found unnecessary to use heavy immobilization dressings, which are necessary where kanagroo tendon is used.

2. *Overlay Bone Graft.* Ununited fractures of small bones, especially the radius and ulna, do not in many cases permit the use of any considerable sized graft applied by the inlay method, and the author has used with considerable success the overlay graft (fig. 10). This method consists in removing with a circular saw about one-third of the diameter of the bone on the side nearest the operator, and for a distance of one and a half to two inches above the fracture. This leaves a flat side, upon which can be laid a piece cut from the crest of the tibia or, if preferable, a longer piece can be cut from one side of the fracture and a shorter piece from the other side, and the longer piece laid across the fractured surfaces. The objection to this method is usually that the cortex is soft, due to disuse atrophy of the bone which has been fractured, and where this is present, of course, bone from the tibia should be used.

Where a piece of the tibia is used, the flat side should be laid on the flat surface of the fractured bone, which is made by the saw cut, the ends of the graft fitting squarely into the cuts at each end of the graft. Fixed by an ivory screw driven thru each side of the fracture to hold the graft firmly into the injured bone, this makes a simple and strong fixation with a graft which in size could not be applied by any other method.

3. *Intramedullary Bone Graft.* This form of bone graft has been almost discarded, because the medullary cavity must be reamed out to so much larger size than the bone graft which is to be put inside of it that the fragments are not held in line with a sufficient degree of solidity to insure perfect alignment. It is also a very easy form of graft to break, because the fragments act as two long levers with a fulcrum at the point of fracture, applying the full force of the muscle pull on the bone graft at the fracture line.

4. *Combination Inlay and Intramedullary Graft.* In large bones, such as the femur and tibia, a combination of intramedullary bone graft and inlay graft can be used, which will hold the fragments firmly in line and which does away with the necessity of taking a graft from another bone. This method is described in *Surgery, Gynecology and Obstetrics,* November, 1916, pages 554-559.

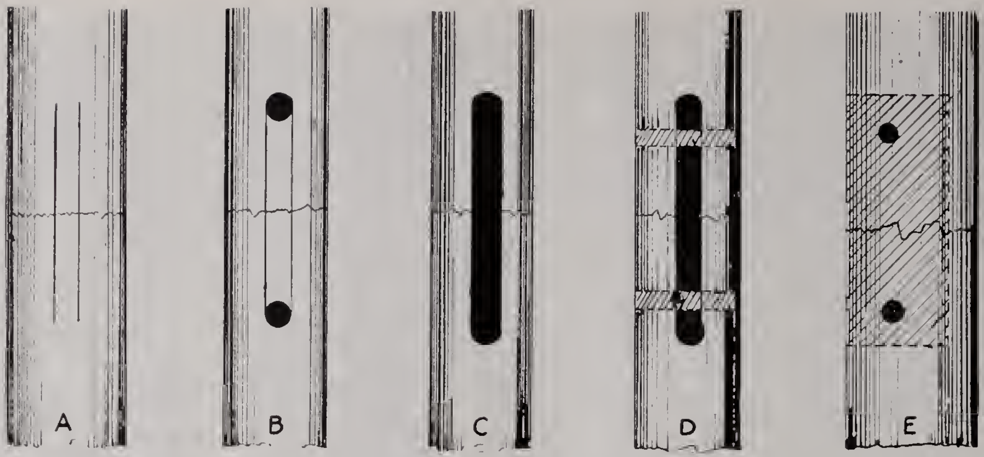


Fig. 12. A. Parallel saw cuts thru one side of the cortex of the bone.
B, Saw cuts connected by drill holes, leaving loose fragment of bone in center.
C, Fragment of bone removed, leaving slot, cut in thru one side of the cortex, looking into the medullary cavity.
D, Ivory key in place in key-way with ivory nails driven thru bone and key, holding key in key-way.
E. Transparent view at right angles to the above illustrations, showing lower edge of key resting against opposite cortex and held in place by ivory nails represented by dots, driven thru at at an angle to the plate.

This is done by cutting a short graft from the fractured end of the most convenient fragment. This graft is cut in the shape of an extremely long-sided truncated cone. The end of the graft which formed part of the fractured surface is exactly the width of the medullary cavity, and the end farthest from the fracture not over an eighth of an inch wider than the medullary cavity. The graft is from one and one-half to two inches long and covered by periosteum. The sides of the graft being cut out with the circular motor-driven saw, the end of the graft is freed with a thin bladed chisel. The opposite fragment is then angulated slightly out of the wound, and the graft driven in to the end of the medullary cavity to half its length. On account of its wedge shape it fits snugly. The fragment is then brought back into line with its fellow and the protruding end of the graft is driven down into the slot out of which it came. This being the wider end allows for the thickness of the saw blade on each side and yet allows the graft to come closely in contact with the walls of the cortex on each side and sink down into the medullary cavity. The result now is that one end of the graft is firmly driven into the end of the medullary cavity of one fragment, the other end being driven into the lower end of the slot out of which it came. There is no way of angulating these fragments except by one end of the graft slipping out of the slot or keyway. This was provided against by drilling thru the graft and the opposite cortex, tapping a thread in the bone and putting thru an ivory screw which holds the key firmly down in the key-way. The screw is then cut off flush with the graft, leaving nothing protruding beyond the cortex on one side or the graft on the other, and leaving one-inch trough above the graft to be filled in with new bone(figs. 11 and 12).

This operation has been extremely satisfactory in the hands of the author and other surgeons who have seen fit to use it. It does away with the necessity of cutting into any other bone to procure the graft and meets all the mechanical requirements of a strong union. There is not as much loosening of the muscles as there would be in a Lane-plate operation but somewhat more than in the ivory-plate operation.

Positive Wassermann In Nonsyphilitic Patients After Intravenous Theraphy. Albert Strickler, Philadelphia, and his co-workers advise (Journal A. M. A., Nov. 27, 1920) that a positive complement fixation test for syphilis obtained with the serum of a patient treated with arsphenamin for some nonsyphilitic malady or some obscure disease should be interpreted with great caution and considerable reservation. In view of the fact that there are a number of affections such as anemia, malaria, recurrent fever, pemphigus, psoriasis and septicemia, in which arsphenamin is recommended as a method of treatment, and because arsphenamin is employed at times in the treatment of obscure diseases and affections difficult to influence as a sort of last resort, it becomes the duty of the clinician and the serologist not to be over hasty or too dogmatic in pronouncing such an individual definitely syphilitic. The authors believe that at times too much arsphenamin is administered in the treatment of syphilis and that this remedy may be responisble for the persistence of a positive Wassermann reaction.

NORTHWEST MEDICINE
The Journal of the State Medical Associations of Oregon, Washington, Idaho and Utah.
Devoted to the Interests of the Medical Profession of the Pacific Northwest
Editorial Office, 1011-12 Cobb Building, Seattle, Wash.
DECEMBER, 1920.

EDITORIAL

THE NARCOTIC DRUG PROBLEM.

For quite a long period the state and federal officials have made constant and vigorous efforts to suppress the illegal traffic in morphine and cocaine. These attempts seem to have accomplished very little, and the number of addicts continually increases in the cities, regardless of all efforts to cure or suppress them. Altho the Harrison Act appears to have been effective in checking the illegal dispensing of these drugs in this country, it permits their export to any country having laws which protects its citizens from the danger of their indiscriminate sale. According to international agreement none are shipped to China, but they are exported to Japan in enormous quantities, chiefly thru the port of Seattle. It is stated that during a period of a few months a sufficient quantity of morphine and cocaine was shipped by eastern manufacturers thru this port to Japan to provide an amount of ten coses to every man, woman and child of that nation. The Japanese, however, are sufficiently keen to protect their own people by legislative action.

There are two ultimate destinations for this great mass of narcotics. The greater part of them reaches China. Already this is considered so great a menace that the commercial bodies of Shanghai have appealed to the British government to check their importation. Another large portion is smuggled into the United States thru the Pacific ports and over the Mexican and Canadian borders. Recently a very large consignment of cocaine was sezed by the Seattle customs officers on a vessel from Japan, whose markings showed that it had been shipped by an eastern manufacturer only sixty days previously. The China Club, of Seatle, has initiated a movement to entirely suppress this nefarious traffic. They have obtained the support of some western senators and congressmen for an amendment to the Harrison Act which will forbid the export of any morphine and cocaine from the United States. Japan is in a position to manufacture all of these drugs that are necessary for its own legitimate consumption. At the same time it is proposed to place the importation of the crude materials in the hands of the Surgeon General of the United States Public Health Service, who will limit the amount to whatever is needed for the legitimate consumption of these drugs in this country. Doubtless a powerful lobby will be organized by the manufacturers with abundant financial backing in an attempt to block such legislation. At the same time a regard for the welfare of our own citizens and an appreciation of the horrible degradation following the use of these drugs ought to arouse a public sentiment which will be overwhelming for the demand for such legislation.

MEASURING UNDERNOURISHMENT OF CHILDREN.

A system for measuring the undernourishment of children was developed before the war by von Pirquet, of the University of Vienna, which he termed the Pelidisi system. It is based on the relation of the length of the body in a sitting position to its weight. The ratio in the normal adult being taken as 100, the average Pelidisi of the normal well nourished child is 94. The lowest plane classified is 76, which indicates undernourishment approximating actual starvation. Children classified under 90 require prompt relief if the diseases of subnutrition are to be avoided. The serious undernourishment in Austria is indicated by the examination of over 50,324 children between the ages of six and fourteen years which showed that 30,817 had a Pelidisi of 93 or lower. Of this number 7,895 showed a Pelidisi below 89. Free meals are given daily to all who register below 93. Herbert Hoover, Chairman of the American Relief, expects to feed 300,000 Austrians during the present winter, while the American Quakers believe that 1,000,000 German children must have assistance from Americans this winter if they are to survive. The complete program must have a fund that will feed approximately 2,500,000 children in Europe during the winter.

POSTGRADUATE LECTURES.

A series of postgraduate lectures has been established by the Portland Academy of Medicine thru the generosity of prominent members of the profession in that city. As indicated in the program below, these include a list of subjects of great value and interest. The profession of the Pacific Northwest is invited to attend any and all of the lectures. As stated by President Campbell, of the University of Oregon, the Academy is aiming to give work of a graduate type, of which the profession should avail itself to as great an extent as possible. It will be noted that several prominent physicians of the East are on the program in addition to well known physicians of the Pacific coast.

PROGRAM.

Thursday, Nov. 11

Thos. H. Joyce Lecture on Neurological Surgery, Dr. Chas. H. Frazier, Philadelphia.

Thursday, Dec. 9

Study of the Influence of Certain Mineral Components Supplementing the Diet, Prof. Geo. A. Olson, Pullman, Wn.

The Effect of Some of the Accessory Food Factors in the Diet of the Young, Dr. C. U. Moore, Portland, Ore.

Resume of the Past Year's Work by the President, Dr. N. W. Jones.

Thursday and Friday, Jan. 6-7.

Annual Lectures, Dr. N. W. Janney, Santa Barbara Cal.

Thursday—Recent Advances in our Knowledge of the Thyroid Gland and its Diseases.

Friday—The Problem of the Metabolic Case as Exemplified by Diabetes.

Thursday, Feb. 10

The Ralph C. and Ray W. Matson and Marr Bisaillon Lecture on Tuberculosis. Subject and speaker to be announced later.

Thursday, March 10

Dr. Walter C. Alvarez, San Francisco. Subject to be announced later.

Thursday, April 14

The Robt. H. Ellis Lecture upon Gynecology and Obstetrics.

Eclampsia, Dr. Ross McPherson, New York.

Thursday May 12

Health Insurance. Program arranged by Dr. Homer Dudley, Seattle, Wn.

NEW ADVERTISEMENTS.

Attention is called to the advertisement of F. W. Friend & Co. (page 14), manufacturers of artificial limbs, braces and instruments, whose skilled workmen are prepared to produce unexcelled articles in these lines. This establishment is an asset to the Northwest. Taylor & Co. (page 25) present the Tycos sphygmomanometer, whose merits are well known to the profession.

MEDICAL NOTES

WASHINGTON.

Methodist Hospitals. The Methodist Church is actively engaged in hospital construction in Eastern Washington, represented by the Deaconess Hospital of Spokane and the Central Washington Deaconess Hospital in Wenatchee. The former is under construction, while the latter is planned in the near future. It will have a capacity of 70 beds with furnishings of the most modern make.

Base Hospital Reunion. Last month a reunion of Base Hospital No. 50 was held in Seattle, attended by one hundred thirty-five members of this organization. Edward Barnes was elected president, Mrs. Florence Dickson, secretary and Fred Dwyer, treasurer.

Snohomish County Medical Society held a meeting in Everett last month, at which an interesting program was presented. The following officers were elected for the ensuing year: N. L. Thompson, Everett, pres.; A. P. Duryee, Everett, sect.-treas.; W. F. West delegate to state association, J. S. Purdy, alternate

Medical Weddings. Last month Dr. A. A. Matthews, of Spokane, was married to Miss Carrie B. Hopkins of Seattle. Dr. H. J. Wychoff, of Seattle, was married to Miss Marie Parr, of Seattle.

IDAHO.

Annex to Hospital. An addition is being built to St. Joseph's Hospital at Lewiston which will contain 54 private rooms, a contagious ward and three-bed wards on each floor. The present hospital with a capacity of about 50 beds is very much overcrowded.

OBITUARIES.

Dr. A. W. Hawley, of Seattle, died Oct. 25 at Kalamazoo, Mich., while returning home from a medical convention in Kansas City. He was fifty-five years of age, born at Aurora, Ill. He graduated from Rush Medical College in 1890, when he engaged in general practice in Chicago. During 1902 he studied at the Eye and Ear Hospital, in London. He located in Seattle for practice in 1903 and was engaged in his specialty at the time of his death.

Dr. H. H. Bole died at Orofino, Ida., Nov. 12. He was born at Meadville, Pa. in 1857. He first practiced medicine at Deadwood, S. Da., in 1870. Later he moved to Jackson, Montana and was the Northern Pacific R. R. surgeon until 1882, when he opened a drug store at Billings. He was the first recorder of Yellowstone County. He located at Lewiston, Ida., in 1890, and seven years later moved to Pierce, where he followed mining and prospecting until four years ago, when illness necessitated his retirement.

Dr. J. P. Meyers of Twin Falls, Ida., died November 10, following an operation for intestinal ulceration. He was 47 years of age and was one of the best known physicians in that city.

Dr. Abram Sharples died Nov. 20, at Goshen, Ore. He was born at Crawford, Pa., in 1841. He graduated from Haverford College in 1861 and from Jefferson Medical College in 1863. He served as surgeon in the U. S. Army during 1864, when he was sent to Fort Alcatraz, San Francisco and later to Fort Yuma, Ariz. In 1865 he located at Eugene, Ore. At different times, he practiced at Salem and Corvallis, but spent most of the time at Eugene till 1900, when he retired from practice. Since then he devoted himself to farming till time of his death. He was father of Dr. C. W. Sharples, of Seattle.

REPORTS OF SOCIETY MEETINGS

UTAH STATE MEDICAL ASSOCIATION.

REPORT OF THE TRANSACTIONS OF THE HOUSE OF DELEGATES OF THE TWENTY-SIXTH ANNUAL MEETING OF THE UTAH STATE MEDICAL ASSOCIATION HELD AT HERMITAGE HOTEL, OGDEN CANYON, UTAH, SEPT. 7 AND 8, 1920.

Tuesday, Sept. 7, Noon.

Dr. George E. Robison, President, presiding. Dr. William L. Rich, Secretary. President Robison called the meeting to order.

First order of business was the reading of the minutes of the 1919 meeting. Inasmuch as minutes of the last meeting were printed in full in Northwest Medicine, it was voted that their reading be dispensed with.

Roll call of the House of Delegates. Quorum present.

Report of Secretary.

Since our last meeting, the Association has suffered a great loss as well as a severe shock in the untimely death of our former secretary, Dr. W. Brown Ewing. Dr. Ewing served the association continually for nine years from 1908 to 1917 as secretary. Early in the war he was chosen as Medical Advisor to the Governor, and as the war activities increased he found his entire time was consumed in that service. Dr. Ewing had a keen appreciation of his duties and his great desire was to do his best in whatever he undertook. His sense of responsibility and patriotism during the war crisis was the cause of his resignation.

During the past year there have been many and varied activities connected with the administration of the affairs of the Association. One prominent feature is the vital and interesting subject of Industrial Medicine which has occupied a prominent place. It was found necessary to appoint a committee to look after this work—the Committee on Industrial Medicine. One of the chief functions of this committee is to cooperate in an advisory capacity with the State Industrial Commission in settling disputes regarding the misconduct of physicians employed by the State Industrial Commission. As an example, the Industrial Commission sometimes complains that certain physicians make unnecessary calls and do unnecessary dressings, or their fees are higher than seems just and fair, etc. Such complaints are to be considered jointly by this committee and the Commission and a fair and honest adjustment made. This committee now consists of three members. The secretary recommends that it be made permanent and so appointed that the term of office of one committeeman shall expire each year. What has been accomplished you will hear from that Committee's report.

The Council on Health and Public Instruction of the American Medical Association has suggested the appointment of another new committee to consist of five members, namely, one public health officer, one pediatrician, one ophthalmogist, and two general practitioners, the two latter preferably from small towns who are interested in educational administration or who have served on boards of education in their districts. The particular function of this committee is to attend the meetings of the State Teachers Association, and cooperate with a similar committee from that organization in promoting better health conditions in our public schools.

The Secretary recommends that such a committee be appointed, and that Dr. Frederick R. Green, of the Council on Health and Public Instruction of the American Medical Association, be notified of its personnel.

The approaching year is one of politics and legislation. The law-making bodies meet and the usual number of Medical Practice Acts will no doubt come up for consideration. This Association has prepared a bill, with which we all of us are more or less familiar. If there ever was a time in the history of the Association when a great opportunity presented itself in legislative affairs, it is this coming year. We must either put over the biggest, broadest, and best Medical Practice Act the history of this state has ever witnessed, or give up to the cults.

If this thing is to be accomplished, it can only be done by a friendly powerful and strong united effort from every member. The Secretary recommends that the personnel of the present committee on Public Policy and Legislation, who for the past two years have devoted much time, energy and money to this work, be reappointed with whatever few changes are necessary as the result of the election of new officers.

The work for the betterment of hospital service is extremely broad. One of our most important committees is the Advisory Committee on Hospitals. The Council on Medical Education and Hospitals of the American Medical Association suggest that this committee be made permanent and that the term of office of one member expire each year. This committee is now composed of five members. The Secretary recommends that its membership be representative of the different hospitals in the state and that the committeemen be appointed for 5, 4, 3, 2 and one year respectively. In this way the term of office of one member will expire each year.

The number of component county societies of this Association is five, the same as last year. The membership for this year as compared with last year is as follows:

Cache Valley	16	increase of 3
Salt Lake County......	191	increase of 13
Uintah County	12	increase of 5
Utah County	34	increase of 5
Weber County	38	increase of 6

Making a grand total of 291, and showing a total gain of 32 over last year.

Decreased earnings and increased expenses were responsible for almost financially wrecking the Association last year. The dues of fifty members who were in the service were remitted, thereby decreasing our income $150. The service men and their wives were also entertained as guests at the banquet, which cost the Association $450. In addition to these unusual expenses, the Committee on Public Policy and Legislation spent $200. for attorney's fees in preparing a Medical Practice Act, making a total of about $800. which would not come in an ordinary year. This, of course, was responsible for our overdraft the latter part of last year and the early part of this.

In addition, we have to pay an increased rate for entertaining our guests at the hotels; the cost of stationery, printing and everything else has also advanced, all of which makes it imperative that we increase our annual dues. The expenses for this year's transactions have not yet been paid.

The Secretary recommends that the annual dues from component societies be increased from $3.00 to $4.00 per member. Our By-laws state that the dues shall not exceed $5.00, so this would be within the limits.

The following officers are to be elected: President, three Vice-presidents, Secretary, Treasurer, Councilor for the first District (3 year term), Delegate and Alternate to the American Medical Association.

Wm. L. Rich, Secretary.

President Robison appointed the following committee to pass upon the reports of the officers and committeemen: Drs. John Z. Brown, Chairman; R R. Hampton, and R. J. Morrell.

The report of Secretary Rich was referred to the Reference Committee on reports of officers and committeemen.

Report of the Treasurer.

From September 8, 1919 to August 25, 1920.

Disbursements.

Oct. 2, Hotel Utah—Banquet to returning army doctors	$ 527.65
Oct. 2, Earl M. Crandall, Premium on bond	2.50
Oct. 2, Grocer Printing Co., Printing Tickets	5.15
Oct. 20, Hotel Utah, Expenses Convention guests	66.65
Oct. 20, A. A. Robison, 3 trips at $1.85	5.55
Oct. 20, F. W. Gardiner Co., Printing	24.50
Oct. 20, St. Louis Button Co., Mdse.	3.70
Oct. 20, Billings Service, Stenographic Service	52.61
Oct. 20, W. L. Rich, Sec'y., Salary $175.00, stamps, $10.10	185.10
Oct. 20, Earl Jay Glade, Audit	5.00
Oct. 20, Jane W. Skolfield, Treasurer's Fee $25.00; Stamps & Stationery, $1.50; Phone, $2.00	28.50
Dec. 10, F. H. Raley, Delivery of Projecting machine	3.00
Dec. 12, F. W. Gardiner Co., Letter-heads	7.70
Feb. 24, Utah Savings & Tr., Interest on Note	1.71
May 8, Huddart Floral Co., Floral Tribute Dr. Ewing	10.00
May 28, Northwest Medicine, Dues	256.00
June 8, Billings Stenog. S., Stenographic Service, Stamps, etc.	29.18
June 23, Arrow-Press, Letter-heads, etc.	43.50
Jan. 3, Discount on Note	2.50
Apr. 6, Payment on Note	125.00
Aug. 25, Interest on Overdraft	.79
Aug. 25, Return to Utah County Association, Dues paid twice	9.00
Aug. 25, For Auditing and accounting, Earl Jay Glade	15.00
Total	$1,410.29

Receipts.

Sept. 8, 1919, Balance in bank		$ 554.46
From the Societies, 1919-20.		
Weber Medical	$120.00	
Salt Lake County	555.00	
Utah County	111.00	
Cache Valley	48.00	
Uintah County	36.00	
Total		870.00
From Other Sources.		
Sept. 11, 1919 Banquet Fund		$ 216.50
May 11, 1920, Liberty Bond Coupon		6.00
Aug. 17, 1920, Interset on Con. Wagon note		22.30
Apr. 16, 1920, Loan from Utah Savings & Trust		125.00
Total		$1,794.26

Reconciliation.

Balance on hand as of September 8, 1919	$ 554.46	
Receipts from Sept. 8, 1919 to August 25, 1920	1,239.80	
Total Receipts		$1,794.26
Disbursements from Sept. 8, 1919 to Aug. 25, 1920		1,410.29
Balance on hand Aug. 25, 1920		383.97
Total		$1,794.26

Assets of Utah State Medical Association.

Cash on hand in Bank on August 25, 1920	$ 383.97
Liberty Bonds	300.00
Note of Con. Wagon & Machine Company	250.00
Total Assets	$ 933.97

Jane W. Skolfield, Treasurer.

The report of the Treasurer was handed to the Reference Committee.

Report of the Council.

The Council met at various times at the invitation of the Presidend and advised concerning committees and programs.

After several years consideration by this and Councils of this Association of previous years, a matter of long standing was finally settled by electing two physicians of Cache County to membership in the Cache County Medical Society.

The Council met with the committee from the Salt Lake County Medical Society and the State Industrial Commission on matters pertaining to the adjustment of fee bill schedule.

At the beginning of the year the Council found the State Association confronted with rather serious financial difficulties on account of the large expense of last year's banquet and entertainment, and the additional expense of the Committee on Public Policy and Legislation. This, however, has been settled, as shown by the report of the Treasurer.

E. G. Hughes, For the Council.

The report of the Council was handed to the Reference Committee for report.

Report of Delegate to A. M. A.

As an alternate chosen by you to represent the state organization at the American Medical Association, held in New Orleans on April twenty-sixth, nineteen twenty, I beg to report as follows:

First: That I attended and voted at every regular session of the House of Delegates of the Association.

Second: That the slogan adopted by the organization was "More and better health legislation for 1920." That a National Department of Health be created with a medical member in the cabinet, to coordinate the work now under a dozen or more departments. That Public Health, which is now a matter of secondary importance as far as the Federal Government is concerned, may be made a matter of first importance.

Third: That the increase tax under the Harrison Law is unjust; that the primary object of this measure was to control the illicit traffic of habit-forming drugs, not the production of revenue. There are in the United States 150,000 physicians and when the fee was increased $2.00 each, $300,000.00 was wrongfully taken from the doctors, whose cooperation had made the Harrison Act possible.

Fourth: That the American Medical Association does not at the present time establish a system of Old Age and Invalidity insurance for the profession.

Reports were received from over 80,000 doctors and only 186 asked for help. This matter was referred to the state organizations.

T. J. Howells.

Committee on Education.

The Committee on Education is of the opinion that educational requirements for the practice of medicine and surgery in all their branches and cults are at the present time below what they should be. It also believes that Utah should stand with the majority of the states in these matters.

According to statistics furnished by the Council on Medical Education of the American Medical Association, Utah is one of the seven states and territories in the United States which appear to accept work from any medical school, be it class A, B, C, or even unrecognized by the state in which it exists. On the same authority, Utah is one of the eighteen states or territories which require less than two years of premedical college training of its applicants for licensure. In this respect there are thirty-two states which require, or have caused laws to be passed which will require, not later than 1922, two full years of premedical college training of all applicants for licensure to practice the healing art in all its branches. This is the minimum requirement for entrance to all Class A medical schools in the United States.

For these reasons and purposes the Committee on Education strongly endorses the stand of the Committee on Public Policy and Legislation, which it is understood is concerned with the passage of a bill which will correct these and other disagreeable (almost intollerable) conditions, and urges all members of the Association to take a united stand in support of these things.

The facilities for postgraduate medical courses in Utah are extremely (almost none at all) limited. This is due in part at least to the fact that the only medical school here offers only the first two years of the medical course. The School of Medicine, of the University of Utah, since moving into its new building, offers some facilities in the line of animal surgery, nutrition, and immunity, should some of the members of the profession be so disposed. Library facilities at the University, due to the cooperation of the Salt Lake County Medical Society, are the best and most complete between Denver and San Francisco.

Committee on Education,
P. G. Snow, Chairman.

The report of the Committee on Education was referred to the Reference Committee.

Committee on Public Policy and Legislation.

For the good of the Public Health, this committee recommends the unanimous support of the Association in an effort to elect one of its members to the House of Representatives and another to the Senate of the Legislature.

(A detailed account was given of the efforts to pass a new Medical Practice Act at the last session of the legislature and reasons for its failure. The work was described of preparing a similar Act to be presented at the next legislative session.)

This bill proposes to take the matter entirely out of the hands of the medical profession and place it with the State Board of Education. This Board will be entirely responsible for standards, and for the proper enforcement of the law. This is perhaps the most important feature of the bill. The cults will not be discriminated against, because they will be permitted to practice their particular method, provided they can give evidence of sufficient education to insure intelligent work. We will risk results if people have the proper educational standards. The thing we do object to is the method of allowing ignorant people to take correspondence courses, or short lecture courses and brazenly announce themselves as practitioners. A proper educational standard would mean the proper degree of refinement to prevent the bold advertising, which has been the main stock in trade of the quack. This bill will safeguard the rights of all parties concerned, and will not be objected to by the cults if they have the educational standard required.

The objection has been raised that we have a bill covering these requirements already on our statute book. While this is measurably true, the enforcement of the existing bill has been left largely to members of the profession, who cannot escape the charges of being parties at interest. We want to get away from this undignified fight, and let the people, thru their properly constituted board regulate the matter themselves. We want to see judges and prosecuting attorneys made to magnify their calling by the pressure of public opinion which will develop as soon as parties at interest are separated from the fight.

Let this body gravely appreciate at this very moment that the entire support and influence of this association and the individual effort of every member of this organization is absolutely necessary to pass this bill thru the legislature. If there is but one doctor of this association who will oppose the bill, it is doomed to defeat.

J. C. LANDENBERGER, Chairman

The report of the Committee on Public Policy and Legislation was referred to the Reference Committee on reports.

Report of the Committee on Industrial Medicine.

The medical fees for industrial work in the State of Utah for the past number of years have been so low that physicians could scarcely make enough to compensate them for the work and responsibility for the care of these cases. As a result, the Salt Lake County Medical Society took the initiative in bringing about a fair fee schedule, and a commttee was appointed with Dr. A. J. Hosmer, as chairman, to take the matter in hand, to do anything and everything to adjust these matters satisfactorily. Legal counsel was employed to determine the proper procedure. This committee finally met the commission and talked the matter over and it was apparent that our differences could be adjusted at a future meeting with the Commission.

The president of the Utah State Medical Association was summoned, as well as others from Ogden, Provo, etc. and it was agreed that the President of the Salt Lake County Medical Society should appoint a committee of three to represent the State Medical Association. This committee is composed of Drs. Ernest Van Cott, H. N. Mayo, and John F. Critchlow. This committee met with the commission on different occasions and finally settled upon a tentative fair fee schedule for industrial work, which would be satisfactory to all. It is practically the same schedule as the revised 1920 Fee schedule of the Salt Lake County Medical Society.

The Commission then gave notice to the public to protest against such fees and set a date for such protest. This meeting was attended by the Commission, insurance carriers, committee appointed by the State Medical Association, and many interested physicians. It seemed that our cause was just and little if any alteration was made in the tentative fee schedule, which is now printed, and was adopted July 1, 1920 by the Commission and is now in your hands.

The Medical Committee appointed by the State works in conjunction with the Industrial Commission of Utah in settling disputes between the physicians and insurance carriers, or anything else that might arise and affect our interests. This committee ceases to function at our annual state meeting, and I herewith hand you my report and instructions.

ERNEST VAN COTT.

Dr. Van Cott's report was handed to the Committee on Reports.

Report of Advisory Committee on Hospitals.

I have the honor to report to the president and House of Delegates that your Committee met during the year and has submitted to the Council of Medical Education and Hospitals, of the American Medical Association, a list and classification of the hospitals of our state in accord with instructions issued by the said council. Under date of Aug. 16 a communication was received from the Secretary, Council Medical Education and Hospitals, enclosing a revised list of hospitals eligible for internship, in which only four of the ten hospitals submitted by your committee were listed. Said secretry has been advised of the omission.

I submit herewith as a report of your committee a classified list of all hospitals reported, together with a letter from the Council expressing satisfaction as to the reports rendered.

F. S. BASCOM, M. D.

(A classified list was presented of hospitals that have or desire interns; also a classified list of hospitals that do not have or desire interns.)

The report of The Advisory Committee on Hospitals was referred to the Reference Committee.

The Report on Scientific Work was called for and Dr. F. W. Taylor of Provo, the Chairman, reported that the Committee on Education, the Committee on Scientific Work and the Committee on Program had met together, and prepared the following report:

The combined committees on Education, Program, and Scientific work respectfully report and recommend as follows:

(1) That as medical and dental societies in other communities have affiliated with state medical schools and established intensive courses of postgraduate work (medical and surgical) which are made available to all members of the medical profession in the following manner:

(a) The establishment of a definite course of not less than two weeks duration a year by the medical school.
(b) The charging of moderate fees to cover actual expenses.
(c) Providing expert instructors for the courses.
(d) The use of all facilities at the command of the School of Medicine of the U. of U.

(2) We suggest that a committee be appointed at this meeting with instructions to establish a course as outlined, before the next meeting of this association.

References—Recent meeting at Portland; recent meeting of dentists in Utah.

P. G. Snow, Chairman Committee on education.
Fred. W. Taylor Chairman Committee on Scientific Work and Program.

Dr. Taylor's report was followed by expressions from the members as to the need of such a course in Utah; also as to the expenses attendant thereto, after which Dr. D. C. Budge, of Logan, made the following motion: That the matter presented in Dr. Taylor's report is of paramount importance to our Association, as it is a means of bringing big men here and provides an opportunity for our members to get certain things at home that they cannot go away to get; and that it be the sense of this meeting that this matter be placed in the hands of a committee who shall establish this course before our next meeting.

Motion seconded and carried.

Report of Dr. Taylor was handed to the Reference Committee.

Report of Committee on Necrology.

Dr. W. Brown Ewing, Salt Lake County Medical Society, Specialist in Mental and Nervous Diseases. Born Dec. 1859; died May 7, 1920. Graduate of Jefferson College, 1881. Graduate of Rush Medical College, 1884. Secretary Utah State Medical Association for nine years, 1908 to 1917. Medical advisor to the Governor 1917-1919, with rank of Captain. Dr. Ewing was loyal to his profession, always trustworthy, and every ready to aid any worthy cause.

Dr. E. I. Thorne, Salt Lake County Medical Society, General Practitioner. Born Oct. 31, 1847; died Nov. 3, 1919, Graduate Ann Arbor Medical School, 1868. Ohio Medical College, 1869. Practiced at Young Springs, Ohio, from 1870 to 1891, when he came to Salt Lake City.

Salathiel Ewing, M. D.

The report on necrology was referred to the Committee on Reports.

Wednesday, Sept. 8, at 8:30 a. m.

Meeting called to order by President Geo. E. Robison. Roll-call of the House of Delegates. Quorum present. Minutes of meeting held September 7, read and approved.

Election of Officers.

The following were elected for the ensuing year: President, R. R. Hampton, Salt Lake; First Vice-President, E. H. Smith, Ogden; Second Vice-President, C. E. McDermid, Castle Gate; Third Vice-President, C. L. Shields, Salt Lake; Secretary, 3 year term, Wm. L. Rich, Salt Lake; Treasurer, F. L. Peterson, Salt Lake; Councilor for First District, three year term, C. L. Rees, Logan; Delegate to A. M. A., Sol G. Kahn, Salt Lake; Alternate, W. R. Calderwood, Salt Lake.

Report of the Reference Committee on Reports of Officers and Committeemen was given by Dr. John Z. Brown, Chairman, as follows: Report of the Secretary accepted with the exception of that part relating to increase in dues, which was rejected. Report of the Treasurer accepted. Report of the Council accepted. Report of Delegate to A. M. A. accepted. Report of Committee on Education accepted. Report of the Committee on Public Policy and Legislation accepted. Report of Joint Committee on Program, Education and Scientific Work accepted with the recommendation that incoming officials appoint the same personnel on that committee that has been working heretofore, in order that the educational program proposed can be carried out. Report of the Committee on Industrial Medicine adopted. Report of the committee on Necrology adopted. Report of the Advisory Committee on Hospitals, adopted.

Report of the committee adopted.

Salt Lake was selected for the next meeting of the Association. Wm. L. Rich, Secretary.

BOOK REVIEWS

Edited by Kenelm Winslow, M. D.

Diagnosis and Treatment of Brain Injuries with and Without A Fracture of the Skull. By William Sharpe, M. D., Professor of Neurological Surgery, New York Polyclinic Medical School and Hospital, etc. 232 Illustrations. J. B. Lippincott Co., Philadelphia and London, 1920.

The outstanding feature of Dr. Sharpe's book is the logical manner in which results and remedies are deduced from the clinical observations of an indisputably large experience. Fractures of the skull may occur with but minor injury to the brain, and very serious injury to the brain may exist without fracture of the skull. The damage may be by direct severance of nerve tracts, but vastly more commonly by increased intracranial pressure, either from hemorrhage or edema. Pulse, respiration, shock, and reflexes are important first guides in diagnosis, but the electric ophthalmoscope and the spinal mercurial manometer give definite answer to the question of when to operate, and when it is safe to wait. When the true condition of intracranial pressure is thus definitely determined, morphine may be safely used to quiet pain and restlessness. Surgical relief, when indicated, will not be delayed because the patient is resting. Subtemporal decompression and drainage is the most advantageous method of relief for destructive intracranial pressure. This should, even as a measure of safety, precede the raising of depressed fractures of the vault, if the general pressure is high. So emphatically are danger points and remedies presented, that the reader will feel that at least half the book should have been printed in italics.

The chapters on general considerations and diagnosis constitute a compendium, on which both expectant and operative treatment are based. The well illustrated descriptions of operative technic, both by drawings and moving pictures, make the course of procedure in acute injuries of the brain plain for the general surgeon. Such injuries constitute real emergencies, and every community should have at least one surgeon competent in their diagnosis and treatment.

The chapters on posttraumatic neuroses, chronic injuries in adults, and particularly that on birth traumatisms of the brain, both in the acute and chronic forms, are of great value. Abscess and infective processes, as well as differential diagnosis of tumor pressure, internal and external hydrocephalus have proper mention. The various phases of the subject are illustrated by complete reports of 195 cases, selected from over one thousand. One of the most interesting of the reported cases is the eldest son of the first president of China. He sustained a fracture of the skull from a fall from his horse, which resulted in the formation of a large extradural hematoma with complete hemiplegia. At the summer home of the President in China, two hundred miles from an x-ray apparatus, Sharpe, under local anesthesia with Chinese assistants, removed the clot. The young man recovered from his hemiplegia. Something over two years later the President and his son were assassinated by poison. This permitted the publication of this instructive case. In these reports a special paragraph of remarks makes this feature of the book a postgraduate course on brain injuries that the surgeon may take home with him. Dr. Sharpe's book merits possession and careful study by every police surgeon, industrial and railway surgeon, as well as the man of more limited service, who is responsible for the welfare of the remote community. A. E. Rockey.

The Diseases of Infants and Children by J. P. Crozer Griffith, M. D., Ph. D., Professor of Pediatrics in the University of Pennsylvania. Two octavo volumes totaling 1542 pages with 436 illustrations, including 20 plates in colors. Philadelphia and London: W. B. Saunders Company, 1919, Cloth, $16.00 net.

This work, entirely new and in its first edition, covers more thoroly the general range of pediatrics than the majority of the newer books on this subject. It is the author's purpose to review medical pediatrics as completely as possible without attempting to make the work an encyclopedia. We all know that Dr. Griffith has had an abundant and rich clinical experience. It is here embodied in a compact form. There are extensive references to original articles quoted in this work, encountered in the author's reading. These he modestly mentions in the preface, but only as one reads the work has he any idea of how numerous they actually are. Practically 2000 original references are given in the first volume alone. None of our general text books on disease in childran lead the reader so readily to so much scientific data underlying practical pediatrics as these volumes contain in these references. Charts and illustrations are numerous and good. We heartily commend the book to general practitioners and pediatrists alike. Manning

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Hygiene Dental and General. By Clair E. Turner, Assistant Professor of Biology and Public Health, Mass Institute of Technology, with Chapters on Dental Hygiene and Oral Phophylaxis by William Rice Dean, Tufts College, Dental School. Cloth, 400 Pp. $4.00. C. V. Mosby Co., St. Louis, Mo. 1920.

This is a text-book on general hygiene adapted for dentists and dental students. The text on hygiene is excellent but that more especially applied to practical dentistry in the chapter on oral prophylaxis is lamentably lacking in scope and matter. The writer takes a decided stand all in the space of a little over two pages, opposing generally the removal of non-vital and infected teeth, and exhibits an inexcusable and incredible ignorance of the clinical results produced by removal of such foci of infection. He thinks that pressure caused by impacted teeth are much more likely to induce diseases of the nervous system, by local irritation of nerves, than infection. He totally ignores the tremendous and far reaching advance in medical treatment due to the teaching of Rosenow, Billings, et al. which seems doubly unkind, considering the enormous increase in dental work it has brought about. It has indeed always seemed to the reviewer that dentists might appropriately reward Rosenow with an honorarium never before bestowed upon any human benefactor as a slight token of what he has done for them.

Winslow.

The American Red Cross In The Great War. By Henry P. Davison, Chairman of the War Council of the American Red Cross. Cloth, 302 Pp. The Macmillan Co., New York, 1920.

This book recounts authoritatively the work, in its scope, character and effect, of the Red Cross in the Great War. It tells what was done at home, in the Army and Navy, at the battle front and in various countries of Europe. It is a most inspiring and interesting work and will be read with patriotic delight by all good citizens. Perhaps, it seems to the reviewer, one of the chief—if not greatest results of the Red Cross—was the effect of its work and comradeship in binding the whole nation together in a spirit of patriotism and self-help as no other agency did. At one time it represented a membership of thirty million.

Winslow.

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The Oxford Medicine. Edited by Henry A. Christian A. M. M. D., Hersey Prof. Theory and Practice, Harvard University. Physician-in-chief, Peter Bent Brigham Hospital, Boston and Sir James MacKensie, M. D., F. R. C. P., LL. D. F. R. S., Consulting Physician, London Hospital. Six Volumes: Vol. II, 817 pp. Oxford University Press, 1920, London and New York.

The second volume of Oxford Medicine more than surpasses our expections founded on review of the first, which was devoted chiefly to general subjects. The work differs from most of its kind in scope and style. The purely clinical side of the subject is always uppermost in the minds of the writers and this makes the work of the greatest practical value. One is impressed with the broadness and impartiality in the discussion of all the subjects. It more nearly resembles the highest type of endowed lectures given by leaders in the profession to intelligent practitioners and presupposes a knowledge common to well-educated physicians. It is not a didactic, summarized, cut-and-dried treatise, such as the ordinary text-book for medical students. Neither are the subjects arranged systematically in divided and subdivided headings and subheadings, which are convenient for teaching students, but which wholly detract from continuity in reading and spoil all literary style and pleasure in perusal. Such treatises are hardly literature but technical productions, approaching more nearly the level of city directories. Osler would never have been the delightful teacher he was, had his work been confined within such systematic limits.

In this volume one is constantly reminded of the admirable style and broad method of discussion generally noted in the course of lectures given in Seattle last summer by Christian, chief editor and contributor to these volumes. The same judicial consideration of the various topics is herein to be found, based on the happy combination of the latest scientific methods and common sense, resulting from a wide and intelligent practical bedside experience. No medical treatment or theory, however popular or accepted, receives sanction unless borne out by scientific facts or clinical results. Again, no more distinguished or able editors or contributors could be selected than the writers of these volumes.

At first glance one wonders at the paucity in the indexing but the loose leaves, to be added from time to time, would probably interfere with a complete original index. This volume treats in a general way of diseases of the chest, mediastinum, heart, bronchi, lungs, blood vessels and the blood, it is altogether a splendid addition to medical literature and one which every medical man should own. Winslow

Sexual Impotence, by Victor G. Vecki, M. D., San Francisco, California. Sixth Edition. 12 mo. of 424 pages. Philadelphia and London: W. B. Saunders Company, 1920. Cloth, $3.00 net.

This is a very excellent work on the subject of impotence. It is forcibly brought out that a complete examination of the physical conditions existing must be made as well as a complete examination of both urinary and sexual organs. The discussion as to diagnosis and treatment is excellent. The details of treatment are very generous, so that with little study one can easily carry out the methods and technic, as they are written so that one can readily understand. Dr. Vecki has presented a very excellent book and has given considerable thought to the broad human sympathy that is necessary along with the treatment. Thomas.

The Fundamentals of Human Anatomy. From the Viewpoint of the Practitioner, by Marsh Pitzman, A. B., M. D. Professor of Anatomy in the Dental Department, Washington University, St. Louis. 101 Illustrations. Pp. 356. $4.00. Cloth. C. V. Mosby Co., St. Louis, 1920.

This is certainly an innovation. It gives the "fundamentals" of anatomic description of all parts of the body. For instance, a little less than half a page of large print is given to the description of the femur, supplying only the important points. So with the comparative anatomy of a region, with the description of the heart or brain or other organ. The idea is to inculcate and fix in the memory the chief anatomic facts first, and then fill in the details later. It is much as if an abbreviated English description of Caesar were given a class to read, before taking up its translation, which has always seemed to the reviewer the only sensible way to teach. To the practitioner, who is already familiar with the subject, it is doubtful if the work will appeal but for the medical student or for nurses and others who are wholly ignorant of anatomy the work should be of great value. Winslow

Cunningham's Manual of Practical Anatomy. 3 Volumes, Revised and Edited by Arthur Robinson, Professor of Anatomy in the University of Edinburgh. Seventh Edition. Illustrations, colored plates and radiographs. Each Volume, $4.00. William Wood and Co., New York, 1920.

These volumes are of a convenient size to use in dissection and the work is not only a text-book of anatomy but also a dissection guide by one of the most distinguished anatomists. It is too well known to need further notice except to add that the text has been thoroly revised and many new figures representing dissections, sections and radiographs have been introduced. Winslow

Sex Attraction. By Victor C. Vaughan, Sc. D. M. D., LL. D. Dean Michigan School of Medicine, Ann Harbor. 50 cts. Paper, 44 Pp. C. V. Mosby Co., St. Louis, Mo., 1920.

This is a very sensible, sympathetic and understanding lecture to teachers of normal schools for the ultimate benefit of their pupils. In one place however, the author tells the teachers to instruct the boy pupil that (if he acquire syphilis), "he can never love a girl without polluting her with a loathsome disease" and later he affirms that he would allow a daughter of his to marry a syphilitic otherwise desirable "providing he were thoroly cured, because the veneral diseases constitute no permanent bar to parenthood" (if he should become luetic). Winslow [illegible]. Claim sent for no 12

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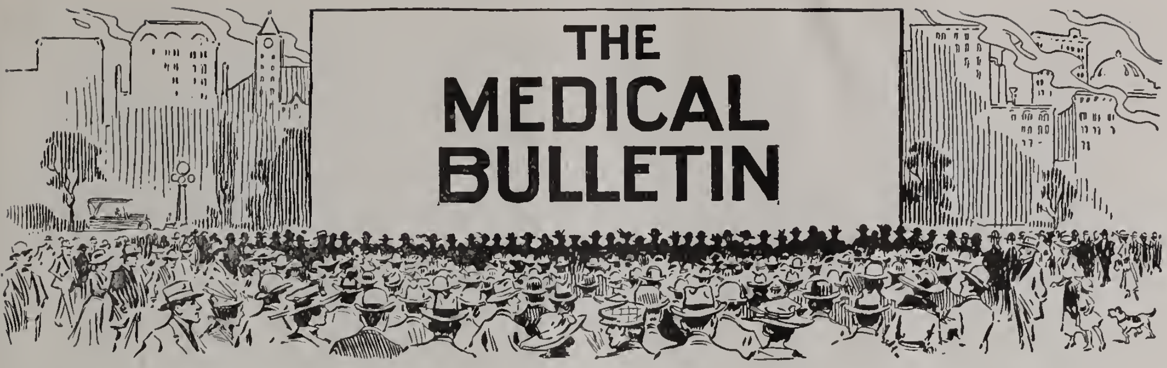

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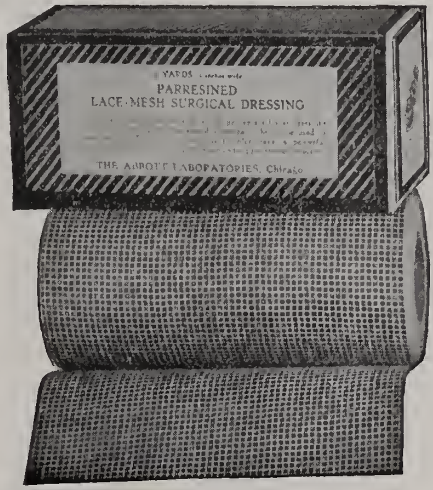

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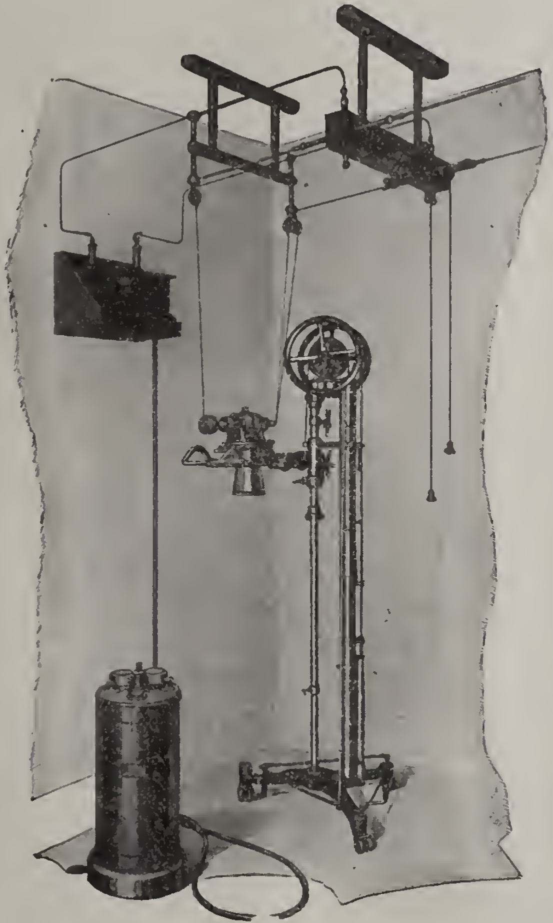

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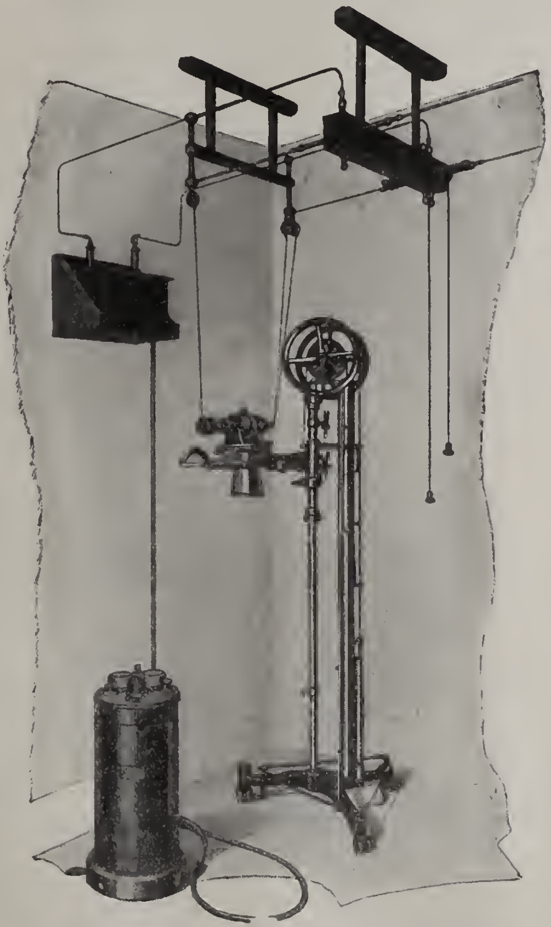

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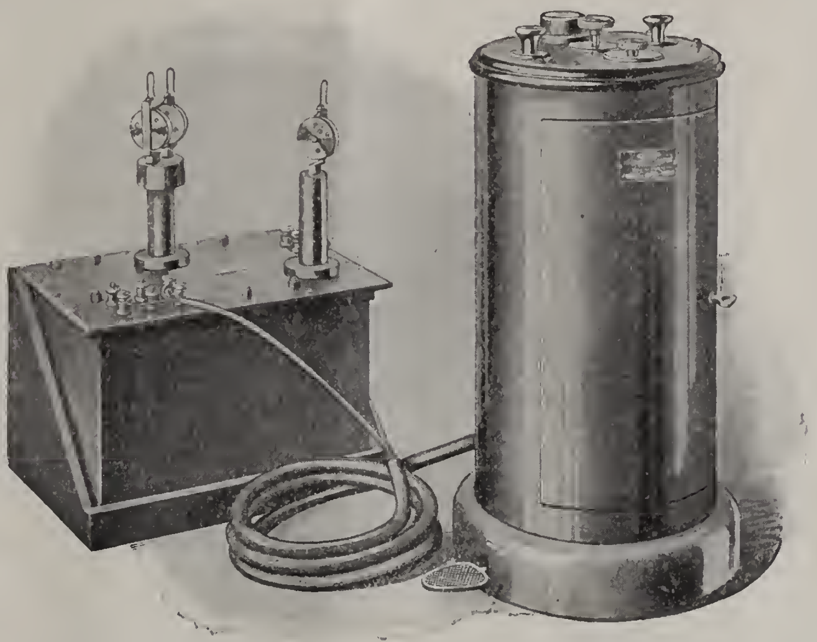

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